

TECHNICAL & SERVICE MANUAL

Series PKH Wall Mounted

Indoor unit
[Model names]

PKH-2FKA

PKH-2.5FKA

PKH-3FKA

PKH-4FKSA

[Service Ref.]

PKH-2FKA₃

PKH-2.5FKA₂

PKH-2.5FKA₃

PKH-3FKA₂

PKH-3FKA₃

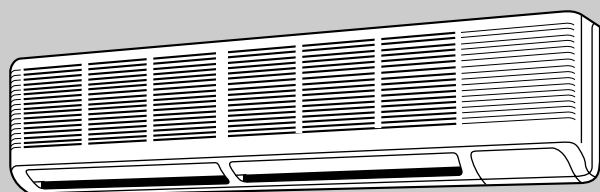
PKH-4FKSA₂

PKH-4FKSA₃

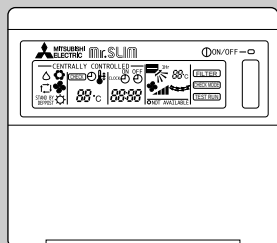
- PKH-2.5FKA₃, PKH-3FKA₃ and PKH-4FKSA₃ are added in REVISED EDITION-A.
- Please void OC132 .
- This manual does not cover outdoor units. When servicing them, please refer to the service manual No.OC128 REVISED EDITION-C and this manual in a set.

[Service Ref.]

PUH-2VKA₂, PUH-2VKA₃,
PUH-2NKA₁, PUH-2NKA₂,
PUH-2.5VKA₂, PUH-2.5VKA₃,
PUH-2.5NKA₁, PUH-2.5NKA₂,
PUH-3VKA₂, PUH-3VKA₃,
PUH-3YKA₂, PUH-3YKA₃,
PUH-3YKA₄,
PUH-3NKA₁, PUH-3NKA₂,
PUH-4YKSA₃, PUH-4YKSA₄,
PUH-4TKSA₁



Indoor unit



REMOTE CONTROLLER

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● PKH-2.5FKA₂ → PKH-2.5FKA₃

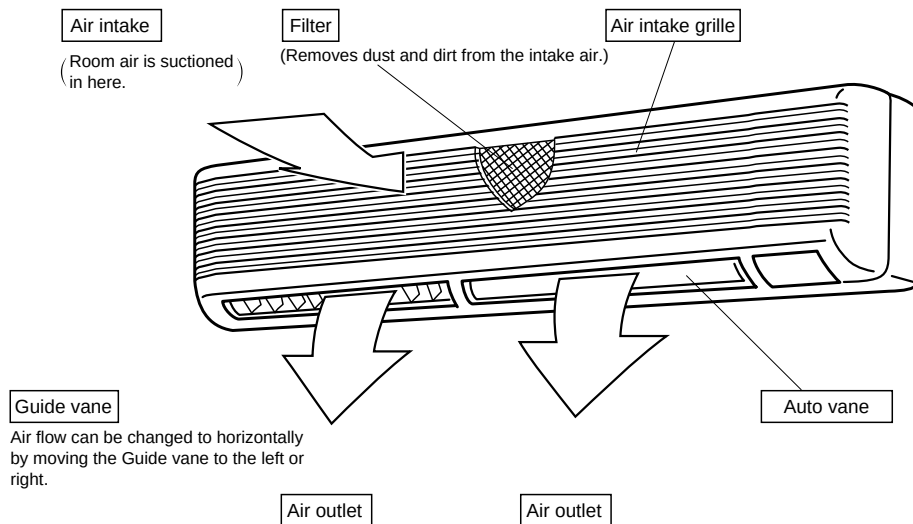
● PKH-3FKA₂ → PKH-3FKA₃

● PKH-4FKSA₂ → PKH-4FKSA₃

- NOSE shape has changed.
- UNDER PLATE shape has changed.
- TOP PLATE shape has changed.
- DRAIN PAN shape has changed.
- BOX ASSEMBLY shape has changed.

- The specifications of these power supply voltages have been added: 50Hz 220-230-240V;
50Hz 380-400-415V.

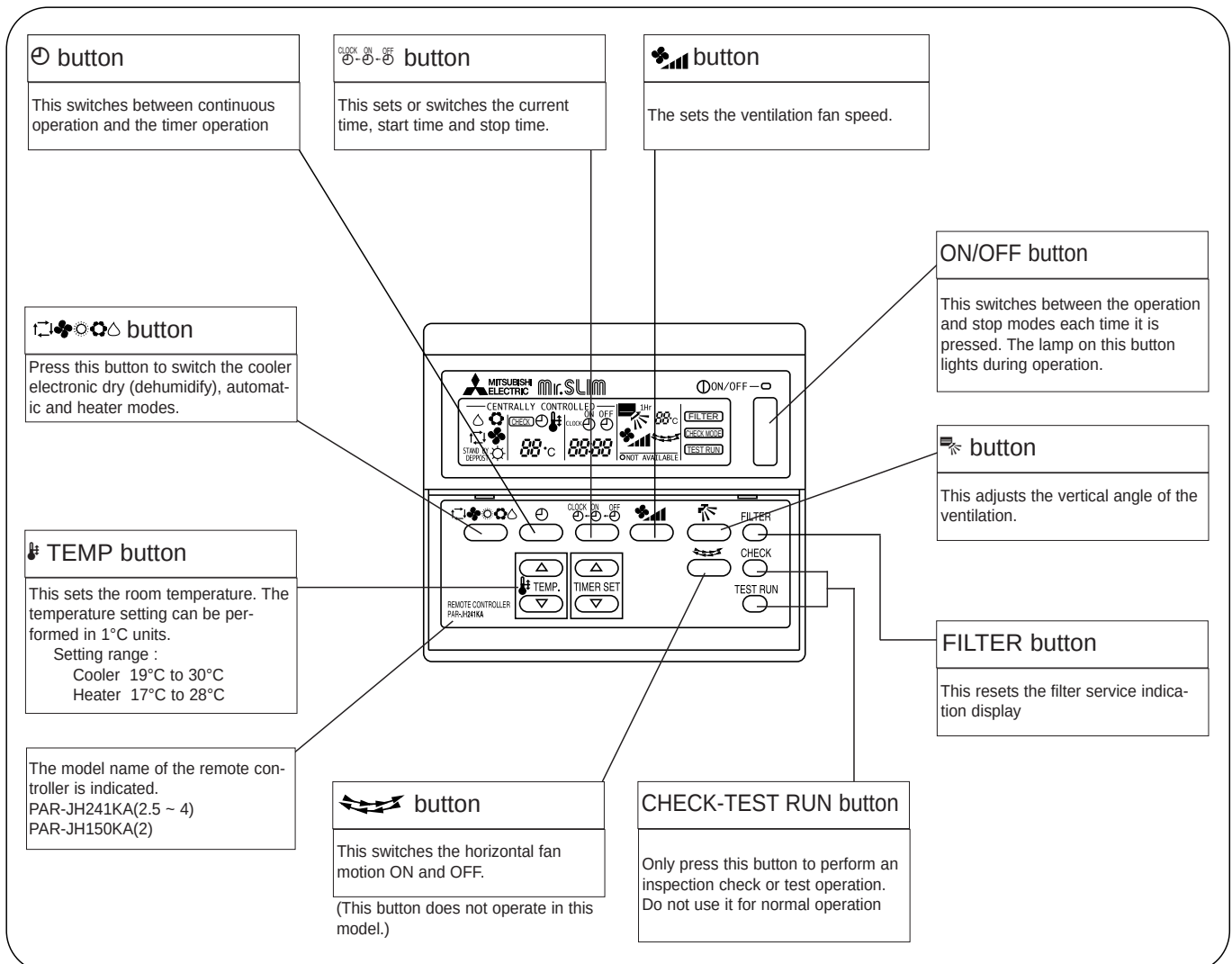
● Indoor Unit



● Remote controller

- Once the operation of the unit is set, subsequent operations can only be performed by pressing the ON/OFF button repeatedly.

● Operation buttons





- 4

Item			Service Ref.	PKH-2FKA ₃	
Function				Cooling	Heating
Capacity			W	5,500	6,250
			Btu/h	18,800	21,300
Total input			kW	2.27	2.29
INDOOR UNIT	Service Ref.			PKH-2FKA ₃	
	Power supply(phase,cycle,voltage)			Single Phase, 50Hz, 220-230-240V	
	Input		kW	0.07	0.07
	Running current		A	0.32	0.32
	Starting current		A	0.40	0.40
	External finish			Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) X No.		Line flow(direct) X 1	
		Fan motor output		0.030	
		Airflow(Low-High)		10-13<353-459>	
		External static pressure		0(direct blow)	
	Booster heater		kW	—	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB	36-43	
	Cond. drain connection. O.D.		mm<in.>	20<13/16>	
	Dimensions	W	mm<in.>	1,250<49-3/16>	
D		mm<in.>	200<7-7/8>		
H		mm<in.>	300<11-13/16>		
Weight		kg<lbs>	18<40>		
OUTDOOR UNIT	Service Ref.			PUH-2VKA ₂ PUH-2VKA ₃	
	Power supply (phase, cycle, voltage)			Single Phase, 50Hz, 220-230-240V	
	Input		kW	2.20	2.22
	Running current		A	9.86	9.95
	Staring current		A	45	
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
	Model			NH38VMD	
	Motor output		kW	1.7	
	Starter type			Line start	
	Protection devices			Internal thermostat, HP switch	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive)XNo.		Propeller (direct) X 1	
		Fan motor output		0.065	
		Airflow		45<1.590>	
	Defrost method			Reverse cycle	
	Noise level		dB	49	
	Dimensions	W	mm<in.>	870(34-1/4)	
		D	mm<in.>	295+24<11-5/8 add 1>	
H		mm<in.>	650<25-5/8>		
Weight		kg<lbs>	64<141>		
REFRIGERANT PIPING	Refrigerant			R22	
	Charge		kg<lbs>	2.2<4.9>	
	Pipe size O.D.	Liquid	mm<in.>	9.52<3/8>	
		Gas	mm<in.>	15.88<5/8>	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor unit	Height difference		Max. 40m	
		Piping length		Max. 40m	

Note 1. Rating Conditions (JIS B 8616)

Cooling : Indoor : D.B. 27°C (80°F), W.B. 19°C (66°F)
Outdoor : D.B. 35°C (95°F), W.B. 24°C (75°F)Heating : Indoor : D.B. 20°C (68°F)
Outdoor : D.B. 7°C (45°F), W.B. 6°C (43°F)

Note 2. Above data based on indicated voltage

Indoor Unit Single phase 240V 50Hz
Outdoor Unit Single phase 240V 50Hz

50Hz

Item		Service Ref.	PKH-2.5FKA ₂ PKH-2.5FKA ₃	
Function			Cooling	Heating
Capacity		W	6,500	7,200
		Btu/h	22,200	24,600
Total input		kW	2.56	2.33
INDOOR UNIT	Service Ref.		PKH-2.5FKA₂ PKH-2.5FKA₃	
	Power supply(phase,cycle,voltage)		Single Phase, 50Hz, 220-230-240V	
	Input	kW	0.095	0.095
	Running current	A	0.44	0.44
	Starting current	A	0.80	0.80
	External finish		Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) X No.	Line flow(direct) X 2	
		Fan motor output	0.040	
		Airflow(Low-High)	15-20<530-706>	
		External static pressure	0(direct blow)	
	Booster heater		—	
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		39-45	
	Cond. drain connector. O.D.		20<13/16>	
	Dimensions	W	1,400<55-1/8>	
		D	235<9-1/4>	
		H	340<13-3/8>	
	Weight		26<57>	
OUTDOOR UNIT	Service Ref.		PUH-2.5VKA₂ PUH-2.5VKA₃	
	Power supply (phase, cycle, voltage)		Single Phase, 50Hz, 220-230-240V	
	Input	kW	2.46	2.23
	Running current	A	10.68	9.78
	Starting current	A	52	
	External finish		Munsell 5y 7/1	
	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model		NH41VMD	
	Motor output	kW	2.0	
	Starter type		Line start	
	Protection devices		Internal thermostat, HP switch	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)XNo.	Propeller (direct) X 1	
		Fan motor output	0.085	
		Airflow	50<1,764>	
	Defrost method		Reverse cycle	
	Noise level		52	
	Dimensions	W	870(34-1/4)	
		D	295+24<11-5/8 add 1>	
		H	850<33-7/16>	
	Weight		64<150>	
REFRIGERANT PIPING	Refrigerant		R22	
	Charge	kg<lbs>	2.8<6.2>	
	Pipe size O.D.	Liquid	9.52<3/8>	
		Gas	15.88<5/8>	
	Connection method	Indoor side	Flared	
		Outdoor side	Flared	
	Between the indoor & outdoor unit	Height difference	Max. 50m	
		Piping length	Max. 50m	

Note 1. Rating Conditions (JIS B 8616)

Cooling : Indoor : D.B. 27°C (80°F), W.B. 19°C (66°F)

Outdoor : D.B. 35°C (95°F), W.B. 24°C (75°F)

Heating : Indoor : D.B. 20°C (68°F)

Outdoor : D.B. 7°C (45°F), W.B. 6°C (43°F)

Note 2. Above data based on indicated voltage

Indoor Unit Single phase 240V 50Hz

Outdoor Unit Single phase 240V 50Hz

Item			Service Ref.	PKH-3FKA ₂ PKH-3FKA ₃	
Function				Cooling	Heating
Capacity			W	7,900	9,100
			Btu/h	27,000	31,000
Total input			kW	3.25	3.04
INDOOR UNIT	Service Ref.			PKH-3FKA ₂ PKH-3FKA ₃	
	Power supply(phase,cycle,voltage)			Single Phase, 50Hz, 220-230-240V	
	Input		kW	0.095	0.095
	Running current		A	0.44	0.44
	Starting current		A	0.80	0.80
	External finish			Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive) X No.		Line flow(direct) X 2	
		Fan motor output		0.040	
		Airflow(Low-High)		15-20<530-706>	
		External static pressure		0(direct blow)	
	Booster heater		kW	—	
	Operation control & Thermostat			Remote controller & built-in	
	Noise level(Low-High)		dB	39-45	
	Cond. drain conn. O.D.		mm<in.>	20<13/16>	
	Dimensions	W	mm<in.>	1,400<55-1/8>	
D		mm<in.>	235<9-1/4>		
H		mm<in.>	340<13-3/8>		
Weight		kg<lbs>	26<57>		
OUTDOOR UNIT	Service Ref.			PUH-3VKA ₂ PUH-3VKA ₃ / PUH-3YKA ₂ PUH-3YKA ₃ PUH-3YKA ₄	
	Power supply (phase, cycle, voltage)			Single Phase, 50Hz, 220-230-240V/3Phase, 50Hz, 380-400-415V(4wires)	
	Input		kW	3.15/3.15	2.94/2.94
	Running current		A	13.82/5.16	12.89/4.81
	Staring current		A	58/37	
	External finish			Munsell 5Y 7/1	
	Refrigerant control			Capillary tube	
	Compressor			Hermetic	
	Model			※	
	Motor output		kW	2.2/2.4	
	Starter type			Line start	
	Protection devices			Internal thermostat, HP switch/Thermal relay, thermal switch	
	Heat exchanger			Plate fin coil	
	Fan	Fan(drive)XNo.		Propeller (direct) X 1	
		Fan motor output		0.085	
		Airflow		m³/min<CFM>	
	Defrost method			Reverse cycle	
	Noise level		dB	52	
	Dimensions	W	mm<in.>	870(34-1/4)	
		D	mm<in.>	295+24<11-5/8 add 1>	
H		mm<in.>	850<33-7/16>		
Weight		kg<lbs>	75<165>		
REFRIGERANT PIPING	Refrigerant			R22	
	Charge		kg<lbs>	3.2<7.1>	
	Pipe size O.D.	Liquid	mm<in.>	9.52<3/8>	
		Gas	mm<in.>	15.88<5/8>	
	Connection method	Indoor side		Flared	
		Outdoor side		Flared	
	Between the indoor & outdoor unit	Height difference		Max. 50m	
		Piping length		Max. 50m	

Note 1. Rating Conditions (JIS B 8616)

Cooling : Indoor : D.B. 27°C (80°F), W.B. 19°C (66°F)

Outdoor : D.B. 35°C (95°F), W.B. 24°C (75°F)

Heating : Indoor : D.B. 20°C (68°F)

Outdoor : D.B. 7°C (45°F), W.B. 6°C (43°F)

Note 2. Above data based on indicated voltage

Indoor Unit Single phase 240V 50Hz

Outdoor Unit Single phase 240V 50Hz

3 phase 415V 50Hz

※ PUH-3VKA₂, PUH-3VKA₃ NH52VDAPUH-3YKA₂, ... NH52YDAPUH-3YKA₃, PUH-3YKA₄ NH52YDE

50Hz

Service Ref.			PKH-4FKSA ₂ PKH-4FKSA ₃	
Item				
Function			Cooling	Heating
Capacity	W		9,500	10,700
	Btu/h		32,400	36,500
Total input	kW		3.31	3.30
INDOOR UNIT	Service Ref.		PKH-4FKSA₂ PKH-4FKSA₃	
	Power supply(phase,cycle,voltage)		Single Phase, 50Hz, 220-230-240V	
	Input	kW	0.114	0.114
	Running current	A	0.53	0.53
	Starting current	A	0.90	0.90
	External finish		Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive) X No.	Line flow(direct) X 2	
		Fan motor output	0.070	
		Airflow(Low-High)	22-28<777-989>	
		External static pressure	0(direct blow)	
	Booster heater		—	
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		41-46	
	Cond. drain connector. O.D.		20<13/16>	
	Dimensions	W	1,680<66-1/8>	
		D	235<9-1/4>	
		H	340<13-3/8>	
	Weight		30<66>	
OUTDOOR UNIT	Service Ref.		PUH-4YKSA₃ PUH-4YKSA₄	
	Power supply (phase, cycle, voltage)		3, 50Hz, 380-400-415V(4wires)	
	Input	kW	3.20	3.19
	Running current	A	5.24	5.22
	Starting current	A	40	
	External finish		Munsell 5Y 7/1	
	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model		PUH-4YKSA ₃ :NH56YDA PUH-4YKSA ₄ :NH56YDE	
	Motor output		2.7	
	Starter type		Line start	
	Protection devices		Thermal relay, thermal switch, HP switch, anti-phase protector	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)XNo.	Propeller (direct) X 2	
		Fan motor output	0.065+0.065	
		Airflow	95<3,350>	
	Defrost method		Reverse cycle	
	Noise level		54	
	Dimensions	W	870(34-1/4)	
		D	295+24<11-5/8 add 1>	
		H	1,258<49-1/2>	
	Weight		94<207>	
REFRIGERANT PIPING	Refrigerant		R22	
	Charge		4.2<9.2>	
	Pipe size O.D.	Liquid	9.52<3/8>	
		Gas	19.05<3/4>	
	Connection method	Indoor side	Flared	
		Outdoor side	Flared	
	Between the indoor & outdoor unit	Height difference	Max. 50m	
		Piping length	Max. 50m	

Note 1. Rating Conditions (JIS B 8616)

Cooling : Indoor : D.B. 27°C (80°F), W.B. 19°C (66°F)
Outdoor : D.B. 35°C (95°F), W.B. 24°C (75°F)Heating : Indoor : D.B. 20°C (68°F)
Outdoor : D.B. 7°C (45°F), W.B. 6°C (43°F)

Note 2. Above data based on indicated voltage

Indoor Unit Single phase 240V 50Hz
Outdoor Unit 3 phase 415V 50Hz

Item		Service Ref.	PKH-2FKA3	
Function			Cooling ※1/ ※2	Heating ※2
Capacity		W	5,800/5,100	6,600
		Btu/h	19,800/17,400	22,500
Total input		kW	2.49/2.91	2.53
INDOOR UNIT	Service Ref.		PKH-2FKA3	
	Power supply(Phase, cycle, voltage)		Single. 60Hz. 220V	
	Input	kW	0.08	0.08
	Running current	A	0.37	0.37
	Starting current	A	0.50	0.50
	External finish		Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)×No.		Line flow (direct) × 1
		Fan motor output	kW	0.030
		Airflow(Low-High)	m³/min (CFM)	10-13<353-459>
		External static pressure	mmAq, Pa	0<direct blow>
	Booster heater		—	
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		36-43	
	Cond. drain connection O.D.		20<13/16>	
	Dimensions	W	mm(in.)	1,250<49-3/16>
		D	mm(in.)	200<7-7/8>
		H	mm(in.)	300<11-13/16>
	Weight		18<40>	
OUTDOOR UNIT	Service Ref.		PUH-2NKA1 PUH-2NKA2	
	Power supply(Phase, cycle, voltage)		Single, 60Hz, 220V	
	Input	kW	2.41/2.83	2.45
	Running current	A	11.07/12.99	11.2
	Starting current	A	54	54
	External finish		Munsell 5Y 7/1	
	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model		NHJ33NBD	
	Motor output		1.5	
	Starter type		Line start	
	Protection devices		Inner thermostat	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)×No.		Propeller (direct) × 1
		Fan motor output	kW	0.065
		Airflow	m³/min (CFM)	45<1,590>
	Defrost method		Reverse cycle	
	Noise level		49	
	Dimensions	W	mm(in.)	870<34-1/4>
		D	mm(in.)	295+24 <11-5/8 add 1>
		H	mm(in.)	650 <25-5/8>
	Weight		66.5<146>	
REFRIGERANT PIPING	Refrigerant		R22	
	Charge		2.2<4.8>	
	Pipe size O.D.	Liquid	mm(in.)	9.52 <3/8>
		Gas	mm(in.)	15.88 <5/8>
	Connection method		Indoor side	Flared
			Outdoor side	Flared
	Between the indoor & outdoor units		Height difference	Max. 40m
			Piping length	Max. 40m

Notes : ※1 Rating conditions

(INDOOR) Cooling : D.B. 27°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 35°C

※2 Rating conditions

(INDOOR) Cooling : D.B. 29°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 46°C

Heating : D.B. 21°C

Heating : D.B. 7°C, W.B. 6°C

60Hz

Item		Service Ref.	PKH-2.5FKA2 PKH-2.5FKA3	
Function			Cooling *1/ *2	Heating *2
Capacity	W		7,000/5,900	8,000
	Btu/h		23,900/20,100	27,300
Total input	kW		3.01/3.53	2.90
INDOOR UNIT	Service Ref.		PKH-2.5FKA2 PKH-2.5FKA3	
	Power supply(Phase, cycle, voltage)		Single. 60Hz. 220V	
	Input	kW	0.095	0.095
	Running current	A	0.44	0.44
	Starting current	A	0.70	0.70
	External finish		Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)×No.	Line flow (direct) × 2	
		Fan motor output	0.040	
		Airflow(Low-High)	15-20<530-706>	
		External static pressure	0<direct blow>	
	Booster heater		—	
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		39-45	
	Cond. drain connection O.D.		20<13/16>	
	Dimensions	W	1,400<55-1/8>	
		D	235<9-1/4>	
		H	340<13-3/8>	
	Weight		26<57>	
OUTDOOR UNIT	Service Ref.		PUH-2.5NKA1 PUH-2.5NKA2	
	Power supply(Phase, cycle, voltage)		Single, 60Hz, 220V	
	Input	kW	2.91/3.43	2.80
	Running current	A	13.50/15.75	13.0
	Starting current	A	58	58
	External finish		Munsell 5Y 7/1	
	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model		NHJ38NBD	
	Motor output	kW	1.7	
	Starter type		Line start	
	Protection devices		Inner thermostat	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)×No.	Propeller (direct) × 1	
		Fan motor output	0.085	
		Airflow	50<1,764>	
	Defrost method		Reverse cycle	
	Noise level		52	
	Dimensions	W	870<34-1/4>	
		D	295+24 <11-5/8 add 1>	
		H	850<33-7/16>	
	Weight		74<163>	
REFRIGERANT PIPING	Refrigerant		R22	
	Charge		2.8<6.2>	
	Pipe size O.D.	Liquid	9.52 <3/8>	
		Gas	15.88 <5/8>	
	Connection method	Indoor side	Flared	
		Outdoor side	Flared	
	Between the indoor & outdoor units		Max. 50m	
		Piping length	Max. 50m	

Notes : *1 Rating conditions

(INDOOR) Cooling : D.B. 27°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 35°C

*2 Rating conditions

(INDOOR) Cooling : D.B. 29°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 46°C

Heating : D.B. 21°C

Heating : D.B. 7°C, W.B. 6°C

Item			Service Ref.	PKH-3FKA2 PKH-3FKA3		
Function				Cooling *1/ *2	Heating *2	
Capacity		W	7,800/6,900		9,500	
		Btu/h	26,600/23,500		32,400	
Total input		kW	3.62/4.23		3.43	
INDOOR UNIT	Service Ref.		PKH-3FKA2 PKH-3FKA3			
	Power supply(Phase, cycle, voltage)		Single. 60Hz. 220V			
	Input	kW	0.095		0.095	
	Running current	A	0.44		0.44	
	Starting current	A	0.70		0.70	
	External finish		Munsell 3.4Y 7.7/0.8(White)			
	Heat exchanger		Plate fin coil			
	Fan	Fan(drive)×No.		Line flow (direct) × 2		
		Fan motor output		0.040		
		Airflow(Low-High)		15-20<530-706>		
		External static pressure		0<direct blow>		
	Booster heater		kW	—		
	Operation control & Thermostat		Remote controller & built-in			
	Noise level(Low-High)		dB	39-45		
	Cond. drain connection O.D.		mm(in.)	20<13/16>		
	Dimensions	W	mm(in.)	1,400<55-1/8>		
		D	mm(in.)	235<9-1/4>		
		H	mm(in.)	340<13-3/8>		
	Weight		kg(lbs)	26<57>		
OUTDOOR UNIT	Service Ref.		PUH-3NKA1 PUH-3NKA2			
	Power supply(Phase, cycle, voltage)		Single, 60Hz, 220V			
	Input	kW	3.52/4.13		3.33	
	Running current	A	16.49/18.77		15.6	
	Starting current	A	80		80	
	External finish		Munsell 5Y 7/1			
	Refrigerant control		Capillary tube			
	Compressor		Hermetic			
	Model			NHJ47NAD		
		Motor output		2.2		
		Starter type		Line start		
		Protection devices		Inner thermostat		
	Heat exchanger		Plate fin coil			
	Fan	Fan(drive)×No.		Propeller (direct) × 1		
		Fan motor output		0.085		
		Airflow		50<1,764>		
	Defrost method		Reverse cycle			
	Noise level		dB	52		
	Dimensions	W	mm(in.)	870<34-1/4>		
		D	mm(in.)	295+24 <11-5/8 add 1>		
		H	mm(in.)	850<33-7/16>		
	Weight		kg(lbs)	78<172>		
REFRIGERANT PIPING	Refrigerant		R22			
	Charge		kg(lbs)	3.2<7.1>		
	Pipe size O.D.	Liquid	mm(in.)	9.52 <3/8>		
		Gas	mm(in.)	15.88 <5/8>		
	Connection method		Indoor side	Flared		
			Outdoor side	Flared		
	Between the indoor & outdoor units		Height difference	Max. 50m		
			Piping length	Max. 50m		

Notes : *1 Rating conditions

(INDOOR) Cooling : D.B. 27°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 35°C

*2 Rating conditions

(INDOOR) Cooling : D.B. 29°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 46°C

Heating : D.B. 21°C

Heating : D.B. 7°C, W.B. 6°C

60Hz

Item		Service Ref.	PKH-4FKSA2 PKH-4FKSA3	
Function			Cooling *1/ *2	Heating *2
Capacity	W		10,400/9,400	12,200
	Btu/h		35,500/32,100	41,600
Total input	kW		4.25/5.12	4.07
INDOOR UNIT	Service Ref.		PKH-4FKSA2 PKH-4FKSA3	
	Power suppl(Phase, cycle, voltage)		Single. 60Hz. 220V	
	Input	kW	0.114	0.114
	Running current	A	0.53	0.53
	Starting current	A	0.80	0.80
	External finish		Munsell 3.4Y 7.7/0.8(White)	
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)×No.		Line flow (direct) × 2
		Fan motor output	kW	0.070
		Airflow(Low-High)	m³/min (CFM)	22--28<777-989>
		External static pressure	mmAq, Pa	0<direct blow>
	Booster heater		kW	—
	Operation control & Thermostat		Remote controller & built-in	
	Noise level(Low-High)		41-46	
	Cond. drain connection O.D.		20<13/16>	
	Dimensions	W	mm(in.)	1,680<66-1/8>
		D	mm(in.)	235<9-1/4>
		H	mm(in.)	340<13-3/8>
	Weight		30<66>	
OUTDOOR UNIT	Service Ref.		PUH-4TKSA1	
	Power supply(Phase, cycle, voltage)		3.60Hz, 220V	
	Input	kW	4.14/5.01	3.96
	Running current	A	11.81/14.14	11.3
	Starting current	A	69	69
	External finish		Munsell 5Y 7/1	
	Refrigerant control		Capillary tube	
	Compressor		Hermetic	
	Model	NHJ56TKA		
		Motor output	kW	2.7
		Starter type		Line start
		Protection devices		Thermal switch, Reversed phase protector, Thermal relay
	Heat exchanger		Plate fin coil	
	Fan	Fan(drive)×No.		Propeller (direct) × 2
		Fan motor output	kW	0.065+0.065
		Airflow	m³/min (CFM)	95<3,350>
	Defrost method		Reverse cycle	
	Noise level		55	
	Dimensions	W	mm(in.)	870<34-1/4>
		D	mm(in.)	295+24 <11-5/8 add 1>
		H	mm(in.)	1,258<49-1/2>
	Weight		94<207>	
REFRIGERANT PIPING	Refrigerant		R22	
	Charge		kg(lbs)	4.7<10.4>
	Pipe size O.D.	Liquid	mm(in.)	9.52<3/8>
		Gas	mm(in.)	19.05<3/4>
	Connection method		Indoor side	Flared
			Outdoor side	Flared
	Between the indoor & outdoor units		Height difference	Max. 50m
			Piping length	Max. 50m

Notes : *1 Rating conditions

(INDOOR) Cooling : D.B. 27°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 35°C

*2 Rating conditions

(INDOOR) Cooling : D.B. 29°C, W.B. 19°C

(OUTDOOR) Cooling : D.B. 46°C

Heating : D.B. 21°C

Heating : D.B. 7°C, W.B. 6°C

1. PERFORMANCE DATA

1) COOLING CAPACITY **50Hz**

Service Ref.	Indoor Intake air W.B.°C	Outdoor intake air D.B.°C											
		20		25		30		35		40		45	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PKH-2FKA ₃	16	5,549	1.82	5,397	1.90	5,198	2.04	4,988	2.19	4,765	2.34	4,530	2.49
	18	5,908	1.86	5,752	1.94	5,543	2.09	5,323	2.24	5,093	2.40	4,852	2.55
	20	6,271	1.89	6,124	1.97	5,905	2.13	5,677	2.30	5,440	2.46	5,193	2.63
	22	6,638	1.93	6,511	2.01	6,285	2.18	6,050	2.35	5,806	2.53	5,552	2.71
PKH-2.5FKA ₂ PKH-2.5FKA ₃	16	6,557	2.05	6,378	2.14	6,144	2.30	5,895	2.47	5,646	2.64	5,373	2.80
	18	6,982	2.09	6,798	2.18	6,551	2.36	6,291	2.53	6,027	2.70	5,747	2.87
	20	7,411	2.13	7,237	2.23	6,979	2.41	6,709	2.59	6,430	2.77	6,143	2.96
	22	7,845	2.17	7,694	2.27	7,428	2.46	7,150	2.65	6,855	2.85	6,561	3.06
PKH-3FKA ₂ PKH-3FKA ₃	16	7,970	2.60	7,752	2.72	7,467	2.92	7,164	3.13	6,862	3.35	6,530	3.56
	18	8,486	2.66	8,262	2.77	7,961	2.99	7,646	3.21	7,325	3.43	6,985	3.65
	20	9,007	2.71	8,796	2.83	8,482	3.06	8,154	3.29	7,815	3.52	7,467	3.76
	22	9,534	2.76	9,352	2.88	9,028	3.12	8,690	3.37	8,332	3.62	7,974	3.88
PKH-4FKSA ₂ PKH-4FKSA ₃	16	9,584	2.65	9,322	2.77	8,979	2.98	8,615	3.19	8,252	3.41	7,852	3.62
	18	10,204	2.71	9,936	2.82	9,574	3.05	9,194	3.27	8,808	3.49	8,400	3.72
	20	10,832	2.76	10,577	2.88	10,200	3.11	9,806	3.35	9,398	3.59	8,979	3.83
	22	11,465	2.81	11,246	2.94	10,856	3.18	10,450	3.43	10,020	3.69	9,589	3.95

Note CA : Capacity (W)

P.C. : Power consumption (kW)

2) COOLING CAPACITY **60Hz**

Service Ref.	Indoor Intake air W.B.°C	Outdoor intake air D.B.°C															
		20		25		30		35		40		45		50		52	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PKH-2FKA ₃	16	5,851	2.00	5,691	2.08	5,482	2.24	5,260	2.40	5,025	2.56	4,777	2.73	4,516	2.89	4,408	2.96
	18	6,230	2.04	6,066	2.12	5,845	2.29	5,613	2.46	5,371	2.63	5,117	2.80	4,852	2.97	4,740	3.03
	20	6,613	2.07	6,458	2.17	6,227	2.34	5,987	2.52	5,736	2.70	5,476	2.88	5,206	3.07	5,096	3.14
	22	7,000	2.11	6,866	2.21	6,628	2.39	6,380	2.58	6,123	2.78	5,855	2.98	5,578	3.18	5,464	3.27
PKH-2.5FKA ₂ PKH-2.5FKA ₃	16	7,062	2.41	6,869	2.52	6,616	2.71	6,348	2.90	6,080	3.10	5,786	3.29	5,450	3.49	5,320	3.57
	18	7,519	2.46	7,321	2.57	7,054	2.77	6,775	2.97	6,490	3.18	6,189	3.38	5,856	3.59	5,721	3.67
	20	7,981	2.51	7,794	2.62	7,515	2.83	7,225	3.05	6,925	3.26	6,616	3.48	6,284	3.71	6,150	3.79
	22	8,448	2.55	8,286	2.67	7,999	2.89	7,700	3.12	7,383	3.35	7,066	3.60	6,732	3.85	6,595	3.95
PKH-3FKA ₂ PKH-3FKA ₃	16	7,869	2.90	7,654	3.03	7,372	3.26	7,074	3.49	6,775	3.73	6,447	3.96	6,073	4.20	5,928	4.30
	18	8,378	2.96	8,158	3.09	7,861	3.33	7,549	3.58	7,232	3.82	6,897	4.07	6,525	4.31	6,375	4.41
	20	8,893	3.02	8,684	3.15	8,374	3.40	8,051	3.66	7,716	3.92	7,372	4.19	7,002	4.46	6,853	4.56
	22	9,414	3.07	9,233	3.21	8,913	3.48	8,580	3.75	8,227	4.03	7,873	4.32	7,501	4.63	7,348	4.75
PKH-4FKSA ₂ PKH-4FKSA ₃	16	10,492	3.41	10,205	3.55	9,830	3.82	9,432	4.10	9,034	4.37	8,596	4.65	8,097	4.93	7,903	5.05
	18	11,171	3.47	10,877	3.62	10,481	3.91	10,065	4.20	9,643	4.49	9,196	4.77	8,701	5.06	8,499	5.18
	20	11,858	3.54	11,579	3.70	11,166	4.00	10,735	4.30	10,288	4.61	9,829	4.91	9,335	5.23	9,137	5.36
	22	12,552	3.61	12,311	3.77	11,885	4.08	11,440	4.40	10,969	4.74	10,497	5.08	10,002	5.44	9,798	5.58

Cooling capacity correction factors

Service Ref.	Refrigerant piping length (one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PKH-2FKA ₃	1.00	0.992	0.983	0.978	0.966	0.959	0.950	0.945	—	—
PKH-2.5FKA ₂ PKH-2.5FKA ₃	1.00	0.989	0.980	0.970	0.960	0.950	0.940	0.930	0.920	0.910
PKH-3FKA ₂ PKH-3FKA ₃	1.00	0.981	0.968	0.952	0.940	0.925	0.913	0.900	0.886	0.874
PKH-4FKSA ₂ PKH-4FKSA ₃	1.00	0.989	0.980	0.970	0.960	0.950	0.940	0.930	0.920	0.910

3) HEATING CAPACITY **50Hz**

Service Ref.	Indoor Intake air W.B. °C	Outdoor intake air D.B. °C											
		-10		-5		0		5		10		15	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PKH-2FKA ₃	15	4,280	1.56	4,905	1.73	5,591	1.90	6,336	2.09	7,139	2.28	8,000	2.49
	20	4,098	1.68	4,713	1.86	5,380	2.05	6,100	2.25	6,871	2.46	7,693	2.68
	25	3,939	1.79	4,521	1.98	5,167	2.19	5,874	2.41	6,643	2.64	7,473	2.87
PKH-2.5FKA ₂ PKH-2.5FKA ₃	15	4,931	1.59	5,651	1.76	6,441	1.93	7,229	2.12	8,225	2.32	9,216	2.53
	20	4,721	1.71	5,429	1.89	6,198	2.09	7,027	2.29	7,916	2.50	8,863	2.73
	25	4,537	1.82	5,209	2.02	5,952	2.23	6,767	2.45	7,653	2.68	8,609	2.92
PKH-3FKA ₂ PKH-3FKA ₃	15	6,232	2.07	7,142	2.29	8,141	2.52	9,225	2.77	10,395	3.03	11,648	3.30
	20	5,967	2.23	6,862	2.47	7,834	2.72	8,881	2.99	10,004	3.26	11,201	3.56
	25	5,735	2.37	6,583	2.63	7,523	2.91	8,553	3.20	9,672	3.50	10,881	3.82
PKH-4FKSA ₂ PKH-4FKSA ₃	15	7,328	2.25	8,398	2.49	9,572	2.74	10,847	3.01	12,223	3.29	13,696	3.59
	20	7,016	2.43	8,068	2.68	9,211	2.95	10,443	3.24	11,763	3.54	13,171	3.86
	25	6,743	2.58	7,741	2.86	8,845	3.16	10,056	3.47	11,373	3.80	12,794	4.14

Note CA : Capacity (W)
P.C. : Power consumption (kW)

4) HEATING CAPACITY **60Hz**

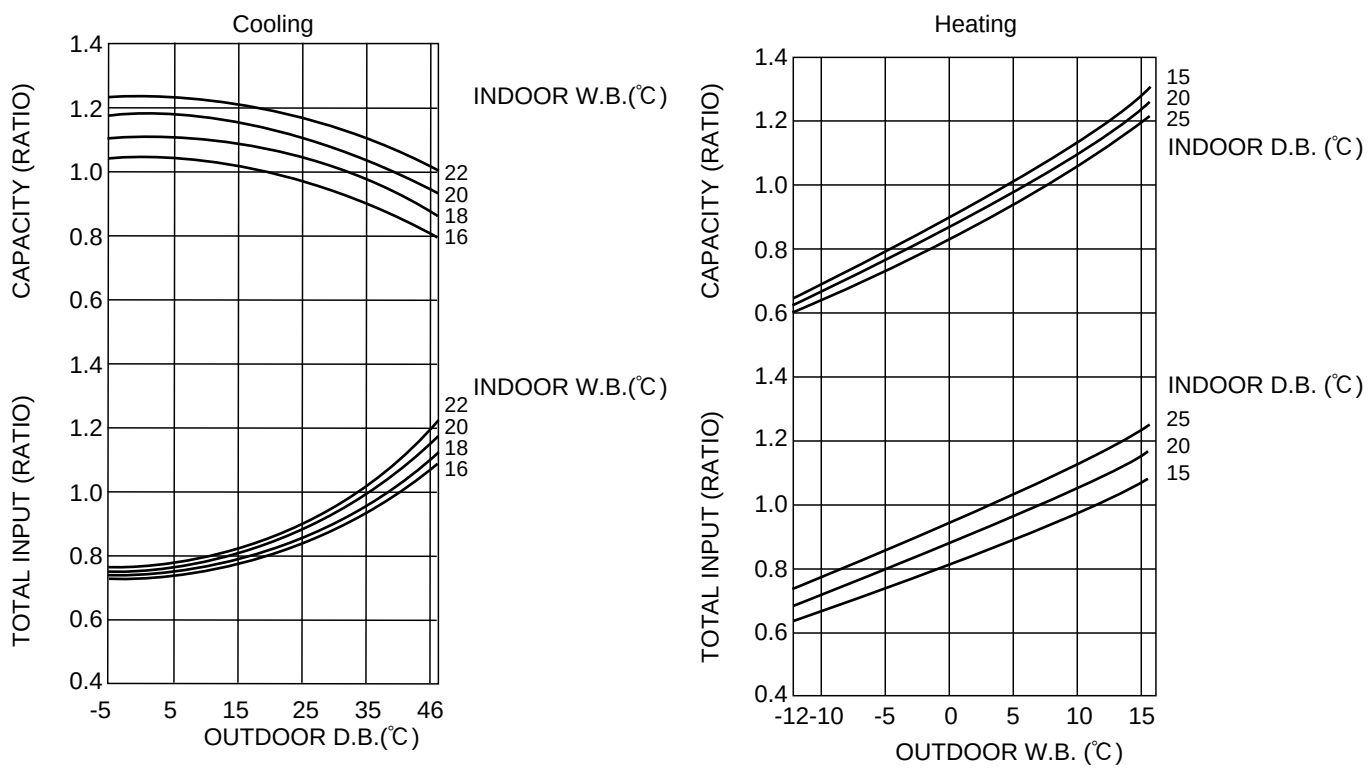
Service Ref.	Indoor Intake air W.B. °C	Outdoor intake air D.B. °C											
		-10		-5		0		5		10		15	
		CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.	CA	P.C.
PKH-2FKA ₃	15	4,520	1.73	5,180	1.91	5,904	2.10	6,691	2.31	7,539	2.52	8,448	2.75
	20	4,328	1.86	4,977	2.06	5,681	2.26	6,441	2.48	7,256	2.72	8,124	2.96
	25	4,159	1.97	4,775	2.19	5,456	2.42	6,203	2.66	7,015	2.91	7,891	3.18
PKH-2.5FKA ₂ PKH-2.5FKA ₃	15	5,479	1.98	6,279	2.19	7,157	2.41	8,110	2.64	9,138	2.89	10,240	3.15
	20	5,246	2.13	6,032	2.36	6,887	2.60	7,808	2.85	8,795	3.11	9,847	3.39
	25	5,041	2.26	5,787	2.51	6,613	2.77	7,519	3.05	8,503	3.34	9,565	3.64
PKH-3FKA ₂ PKH-3FKA ₃	15	6,506	2.34	7,456	2.59	8,498	2.85	9,631	3.13	10,852	3.42	12,160	3.73
	20	6,229	2.52	7,163	2.79	8,178	3.07	9,272	3.37	10,444	3.68	11,694	4.01
	25	5,987	2.68	6,873	2.97	7,853	3.28	8,928	3.61	10,097	3.95	11,359	4.31
PKH-4FKSA ₂ PKH-4FKSA ₃	15	8,355	2.78	9,575	2.07	10,914	3.38	12,368	3.71	13,936	4.06	15,616	4.42
	20	8,000	2.99	9,199	3.31	10,502	3.64	11,907	4.00	13,412	4.37	15,017	4.76
	25	7,688	3.18	8,826	3.52	10,085	3.89	11,466	4.28	12,967	4.69	14,587	5.11

Note CA : Capacity (W)
P.C. : Power consumption (kW)

Heating capacity correction factors

Service Ref.	Refrigerant piping length (one way)									
	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
PKH-2FKA ₃	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	—	—
PKH-2.5FKA ₂ PKH-2.5FKA ₃	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PKH-3FKA ₂ PKH-3FKA ₃	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990
PKH-4FKSA ₂ PKH-4FKSA ₃	1.00	1.00	1.00	1.00	1.00	1.00	0.998	0.995	0.993	0.990

2. PERFORMANCE CURVE



3. ELECTRICAL DATA **50Hz**

Indoor unit 220V 50Hz 1phase

Outdoor unit . . . 220V 50Hz 1phase / 380V 50Hz 3phase

Service Ref.	Indoor unit	PKH-2FKA ₃		PKH-2.5FKA ₂ PKH-2.5FKA ₃		PKH-3FKA ₂ PKH-3FKA ₃		PKH-4FKSA ₂ PKH-4FKSA ₃			
	Outdoor unit	PUH-2VKA ₂ PUH-2VKA ₃		PUH-2.5VKA ₂ PUH-2.5VKA ₃		PUH-3VKA ₂ PUH-3VKA ₃		PUH-3YKA ₂ PUH-3YKA ₃ PUH-3YKA ₄		PUH-4YKSA ₃ PUH-4YKSA ₄	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity(W)		5,400	6,150	6,400	7,100	7,800	9,000	7,800	9,000	9,400	10,500
Total Input(kW)		2.19	2.21	2.51	2.26	3.23	3.02	3.23	3.02	3.28	3.27
Indoor unit	Input(kW)	0.07	0.07	0.095	0.095	0.095	0.095	0.095	0.095	0.11	0.114
	Current(A)	0.32	0.32	0.440	0.440	0.440	0.440	0.440	0.440	0.530	0.530
	Starting current(A)	0.40	0.40	0.70	0.70	0.70	0.70	0.70	0.70	0.80	0.80
Outdoor unit	Input(kW)	2.12	2.14	2.41	2.16	3.13	2.92	3.13	2.92	3.17	3.16
	Current(A)	9.83	9.93	11.18	10.02	14.67	13.68	5.23	4.88	5.29	5.28
	Starting current(A)	43	43	52	52	54	54	34	34	37	37

Indoor unit 230V 50Hz 1phase

Outdoor unit . . . 230V 50Hz 1phase / 400V 50Hz 3phase

Service Ref.	Indoor unit	PKH-2FKA ₃		PKH-2.5FKA ₂ PKH-2.5FKA ₃		PKH-3FKA ₂ PKH-3FKA ₃		PKH-4FKSA ₂ PKH-4FKSA ₃			
	Outdoor unit	PUH-2VKA ₂ PUH-2VKA ₃		PUH-2.5VKA ₂ PUH-2.5VKA ₃		PUH-3VKA ₂ PUH-3VKA ₃		PUH-3YKA ₂ PUH-3YKA ₃ PUH-3YKA ₄		PUH-4YKSA ₃ PUH-4YKSA ₄	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity(W)		5,450	6,200	6,450	7,150	7,850	9,050	7,850	9,050	9,450	10,600
Total Input(kW)		2.23	2.25	2.54	2.30	3.24	3.03	3.24	3.03	3.30	3.29
Indoor unit	Input(kW)	0.070	0.070	0.095	0.095	0.095	0.095	0.095	0.095	0.114	0.114
	Current(A)	0.320	0.320	0.440	0.440	0.440	0.440	0.440	0.440	0.530	0.530
	Starting current(A)	0.40	0.40	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Outdoor unit	Input(kW)	2.16	2.18	2.44	2.20	3.14	2.93	3.14	2.93	3.19	3.18
	Current(A)	9.78	9.87	10.94	9.86	14.22	13.27	5.21	4.86	5.23	5.22
	Starting current(A)	44	44	52	52	56	56	36	36	39	39

Indoor unit 240V 50Hz 1phase

Outdoor unit . . . 240V 50Hz 1phase / 415V 50Hz 3phase

Service Ref.	Indoor unit	PKH-2FKA ₃		PKH-2.5FKA ₂ PKH-2.5FKA ₃		PKH-3FKA ₂ PKH-3FKA ₃		PKH-4FKSA ₂ PKH-4FKSA ₃			
	Outdoor unit	PUH-2VKA ₂ PUH-2VKA ₃		PUH-2.5VKA ₂ PUH-2.5VKA ₃		PUH-3VKA ₂ PUH-3VKA ₃		PUH-3YKA ₂ PUH-3YKA ₃ PUH-3YKA ₄		PUH-4YKSA ₃ PUH-4YKSA ₄	
Mode		Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat
Capacity(W)		5,500	6,250	6,500	7,200	7,900	9,100	7,900	9,100	9,500	10,700
Total Input(kW)		2.27	2.29	2.56	2.33	3.25	3.04	3.25	3.04	3.31	3.30
Indoor unit	Input(kW)	0.070	0.070	0.095	0.095	0.095	0.095	0.095	0.095	0.114	0.11
	Current(A)	0.320	0.320	0.440	0.440	0.440	0.440	0.440	0.440	0.530	0.53
	Starting current(A)	0.40	0.40	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.90
Outdoor unit	Input(kW)	2.20	2.22	2.46	2.23	3.15	2.94	3.15	2.94	3.20	3.19
	Current(A)	9.86	9.95	10.68	9.78	13.82	12.89	5.16	4.81	5.24	5.22
	Starting current(A)	45	45	52	52	58	58	37	37	40	40

3. ELECTRICAL DATA **60Hz**

Indoor unit 220V 60Hz 1phase

Outdoor unit . . . 220V 60Hz 1phase/3phases

Rating condition (Cooling)··Indoor D.B. 27°C, W.B. 19°C Outdoor D.B. 35°C

Service Ref.	Indoor unit	PKH-2FKA ₃	PKH-2.5FKA ₂ PKH-2.5FKA ₃
	Outdoor unit	PUH-2NKA ₁ PUH-2NKA ₂	PUH-2.5NKA ₁ PUH-2.5NKA ₂
Mode		Cooling	Cooling
Capacity (W)		5,800	7,000
Total Input (kW)		2.49	3.01
Indoor unit	Input (kW)	0.08	0.095
	Current (A)	0.37	0.44
	Starting current (A)	0.50	0.70
Outdoor unit	Input (kW)	2.41	2.91
	Current (A)	11.07	13.50
	Starting current (A)	54	58

Rating condition (Cooling)··Indoor D.B. 29°C, W.B. 19°C Outdoor D.B. 46°C, W.B. 24°C } (SSA385, 386)

Rating condition (Heating)··Indoor D.B. 21°C

Outdoor D.B. 7°C, W.B. 6°C

Service Ref.	Indoor unit	PKH-2FKA ₃		PKH-2.5FKA ₂ PKH-2.5FKA ₃	
	Outdoor unit	PUH-2NKA ₁ PUH-2NKA ₂		PUH-2.5NKA ₁ PUH-2.5NKA ₂	
Mode		Cooling	Heating	Cooling	Heating
Capacity (W)		5,100	6,600	5,900	8,000
Total Input (kW)		2.91	2.53	3.53	2.90
Indoor unit	Input (kW)	0.08	0.08	0.095	0.095
	Current (A)	0.37	0.37	0.44	0.44
	Starting current (A)	0.50	1.50	0.70	0.70
Outdoor unit	Input (kW)	2.83	2.45	3.43	2.80
	Current (A)	12.99	11.2	15.75	13.0
	Starting current (A)	54	54	58	58

Rating condition (Cooling)··Indoor D.B. 27°C, W.B. 19°C Outdoor D.B. 35°C

Service Ref.	Indoor unit	PKH-3FKA ₂ PKH-3FKA ₃	PKH-4FKSA ₂ PKH-4FKSA ₃
	Outdoor unit	PUH-3NKA ₁ PUH-3NKA ₂	PUH-4TKSA ₁
Mode		Cooling	Cooling
Capacity (W)		7,800	10,400
Total Input (kW)		3.62	4.25
Indoor unit	Input (kW)	0.095	0.114
	Current (A)	0.44	0.53
	Starting current (A)	0.70	0.80
Outdoor unit	Input (kW)	3.52	4.14
	Current (A)	16.49	11.81
	Starting current (A)	80	69

Rating condition (Cooling)··Indoor D.B. 29°C, 19°C W.B. Outdoor D.B. 46°C, W.B. 24°C } (SSA385, 386)

Rating condition (Heating)··Indoor D.B. 21°C

Outdoor D.B. 7°C, W.B. 6°C

Service Ref.	Indoor unit	PKH-3FKA ₂ PKH-3FKA ₃		PKH-4FKSA ₂ PKH-4FKSA ₃	
	Outdoor unit	PUH-3NKA ₁ PUH-3NKA ₂		PUH-4TKSA ₁	
Mode		Cooling	Heating	Cooling	Heating
Capacity (W)		6,900	9,500	9,400	12,200
Total Input (kW)		4.23	3.43	5.12	4.07
Indoor unit	Input (kW)	0.095	0.095	0.114	0.114
	Current (A)	0.44	0.44	0.53	0.53
	Starting current (A)	0.70	0.70	0.80	0.80
Outdoor unit	Input (kW)	4.13	3.33	5.01	3.96
	Current (A)	18.77	15.6	14.14	11.3
	Starting current (A)	80	80	69	69

4. STANDARD OPERATION DATA **50Hz**

Service Ref.			PKH-2FKA3		PKH-2.5FKA2 PKH-2.5FKA3		PKH-3FKA2 PKH-3FKA3				PKH-4FKSA2 PKH-4FKSA3		
Mode			Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating	
Total	Capacity	W	5,500	6,250	6,500	7,200	7,900	9,100	7,900	9,100	9,500	10,700	
	Input	kW	2.27	2.29	2.56	2.33	3.25	3.04	3.25	3.04	3.31	3.30	
Electrical circuit	Indoor unit Service Ref.		PKH-2FKA3		PKH-2.5FKA2 PKH-2.5FKA3		PKH-3FKA2 PKH-3FKA3				PKH-4FKSA2 PKH-4FKSA3		
	Phase,HZ		1,50		1,50		1,50				1,50		
	Volts		240		240		240				240		
	Amperes		0.320	0.320	0.440	0.440	0.440	0.440	0.440	0.440	0.530	0.530	
	Outdoor unit Service Ref.		PUH-2VKA2 PUH-2VKA3		PUH-2.5VKA2 PUH-2.5VKA3		PUH-3VKA2 PUH-3VKA3		PUH-3YKA2 PUH-3YKA3 PUH-3YKA4		PUH-4YKSA3 PUH-4YKSA4		
	Phase,HZ		1,50		1,50		1,50		3,50		3,50		
	Volts		240		240		240		415		415		
	Amperes		9.86	9.95	10.68	9.78	13.82	12.89	5.16	4.81	5.24	5.22	
Refrigerant circuit	Discharge pressure	MPa (kg/cm²)	1.87 (19.1)	1.99 (20.3)	2.00 (20.4)	1.62 (16.5)	2.07 (21.1)	1.96 (20.0)	2.07 (21.1)	1.96 (20.0)	1.80 (18.4)	1.69 (17.2)	
	Suction pressure	MPa (kg/cm²)	0.42 (4.28)	0.36 (3.67)	0.52 (5.3)	0.36 (3.67)	0.45 (4.59)	0.37 (37.7)	0.45 (4.59)	0.35 (3.57)	0.51 (5.2)	0.37 (37.7)	
	Discahrge temperature	°C	86	90	85	74	90	86	90	86	79	76	
	Condensing temperature	°C	51	53	53	44	53	52	53	52	49	46	
	Suction temperature	°C	2	-2	7	-3	6	-2	6	-2	8	-1	
	Ref.pipe length	m	5	5	5	5	5	5	5	5	5	5	
Indoor side	Intake air temperature	D.B.	°C	27	20	27	20	27	20	27	20	20	
		W.B.	°C	19	15	19	15	19	15	19	15	15	
	Discharge air temperature	D.B.	°C	13.0	44.3	14.5	37.9	13.2	43.4	13.2	43.4	14.3	40.4
Outdoor side	Intake air temperature	D.B.	°C	35	7	35	7	35	7	35	7	35	7
		W.B.	°C	24	6	24	6	24	6	24	6	24	6
SHF			0.71	—	0.83	—	0.74	—	0.74	—	0.80	—	
BF			0.15	—	0.11	—	0.12	—	0.12	—	0.11	—	

The unit of pressure has been changed to MPa on the international system of unit (SI unit system).
The converted score against the traditional unit system can be gotten according to the formula below.
1(MPa) = 10.2(kg/cm²)

4. STANDARD OPERATION DATA **60Hz**

Service Ref.				PKH-2FKA ₃		PKH-2.5FKA ₂ PKH-2.5FKA ₃		PKH-3FKA ₂ PKH-3FKA ₃		PKH-4FKSA ₂ PKH-4FKSA ₃	
Mode				Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
Total			W	5,800	6,600	7,000	8,000	7,800	9,500	10,400	12,200
	Capacity		KW	2.49	2.53	3.01	2.90	3.62	3.43	4.25	4.07
Electrical circuit	Input Indoor unit Service Ref.			PKH-2FKA ₃		PKH-2.5FKA ₂ PKH-2.5FKA ₃		PKH-3FKA ₂ PKH-3FKA ₃		PKH-4FKSA ₂ PKH-4FKSA ₃	
	Phase, Hz			1.60		1.60		1.60		1.60	
	Volts		V	220		220		220		220	
	Amperes		A	0.37	0.37	0.44	0.44	0.44	0.44	0.53	0.53
	Outdoor unit Service Ref.			PUH-2NKA ₁ PUH-2NKA ₂		PUH-2.5NKA ₁ PUH-2.5NKA ₂		PUH-3NKA ₁ PUH-3NKA ₂		PUH-4TKSA ₁	
	Phase, Hz			1.60		1.60		1.60		3.60	
	Volts		V	220		220		220		220	
	Amperes		A	11.07	11.2	13.50	13.0	16.49	15.6	11.81	11.30
Refrigerant circuit	Discharge pressure		Mpa (kgf/cm ²)	1.98 (20.2)	2.05 (21.0)	2.12 (21.6)	1.82 (18.6)	2.07 (21.1)	2.02 (20.6)	1.97 (20.1)	1.90 (19.4)
	Suction pressure		Mpa (kgf/cm ²)	0.41 (4.2)	0.34 (3.5)	0.52 (5.3)	0.36 (3.7)	0.45 (4.6)	0.34 (3.5)	0.46 (4.7)	0.35 (3.6)
	Discharge temperature		°C	70.2	98.3	78.3	82.9	76.1	83.7	81.6	87.1
	Condensing temperature		°C	51.8	53.7	54.2	48.0	56.7	52.2	51.1	50.2
	Suction temperature		°C	2.4	-3.0	5.8	-3.4	4.6	-2.9	5.1	-2.9
	Ref. pipe length		m	5	5	5	5	5	5	5	5
Indoor side	Intake air temperature		D.B. °C	27	21	27	21	27	21	27	21
			W.B. °C	19	15.5	19	15.5	19	15.5	19	15.5
	Discharge air temperature		D.B. °C	13	45.7	14	40.2	13.1	44.0	13.5	43.5
Outdoor side	Intake air temperature		D.B. °C	35	7	35	7	35	7	35	7
			W.B. °C	24	6	24	6	24	6	24	6
SHF				0.70	—	0.79	—	0.74	—	0.76	—
BF				0.19	—	0.11	—	0.11	—	0.11	—

The unit of pressure has been changed to Mpa based on the international SI system.

The conversion factor is : 1(MPa)=10.2(kgf/cm²)

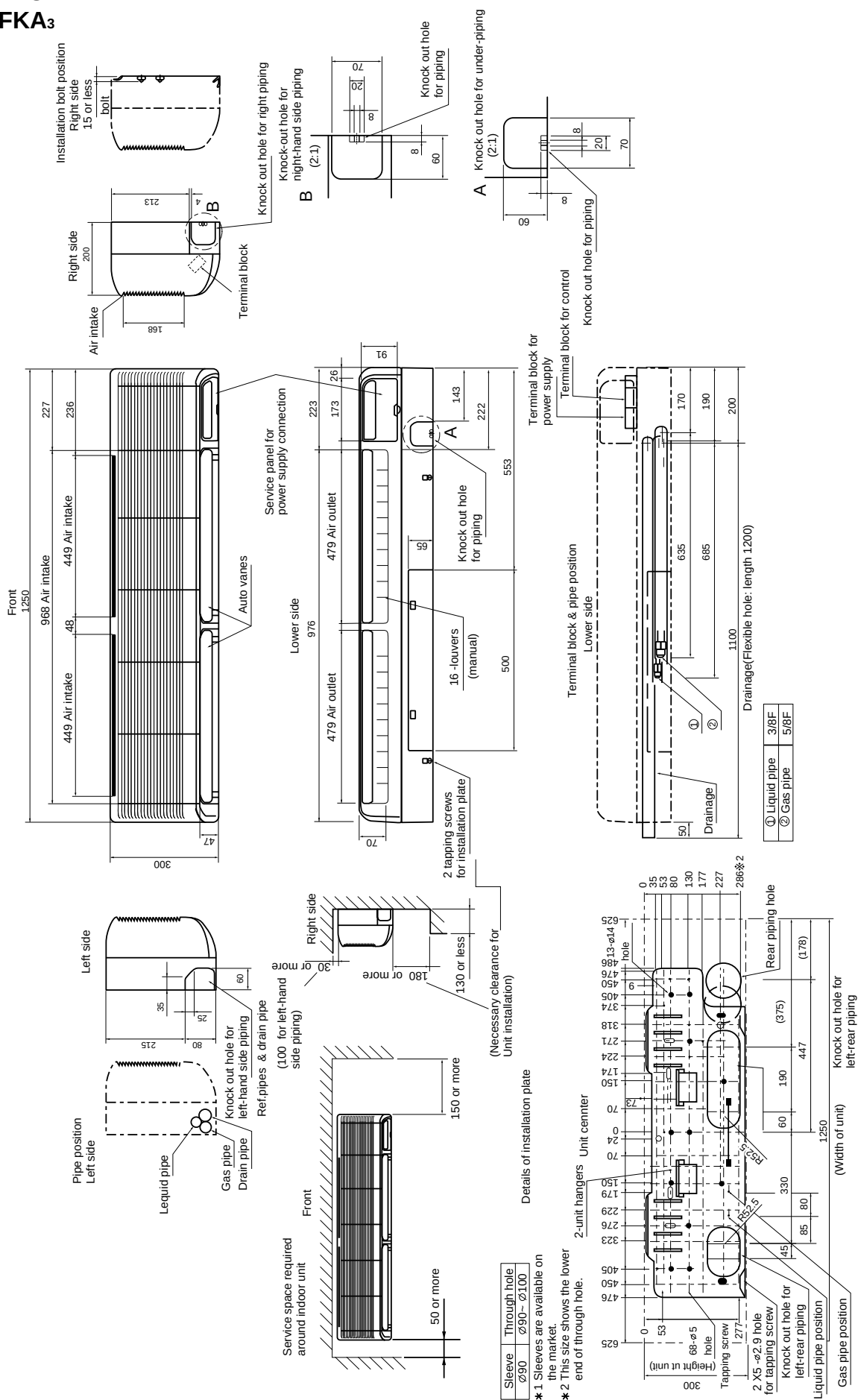
5. OUTLET AIR SPEED AND COVERAGE RANGE

Service Ref.		PKH-2FKA ₃	PKH-2.5FKA ₂ PKH-2.5FKA ₃	PKH-3FKA ₂ PKH-3FKA ₃	PKH-4FKSA ₂ PKH-4FKSA ₃
Air flow	m ³ /min	13	20	20	28
Air speed	m/sec.	4.0	4.9	4.9	5.4
Coverage range	m	9.1	12.4	12.4	15.3

The air coverage range is the value up to the position where the air speed is 0.25m/sec. when air is blown out horizontally from the unit at the Hi notch position.

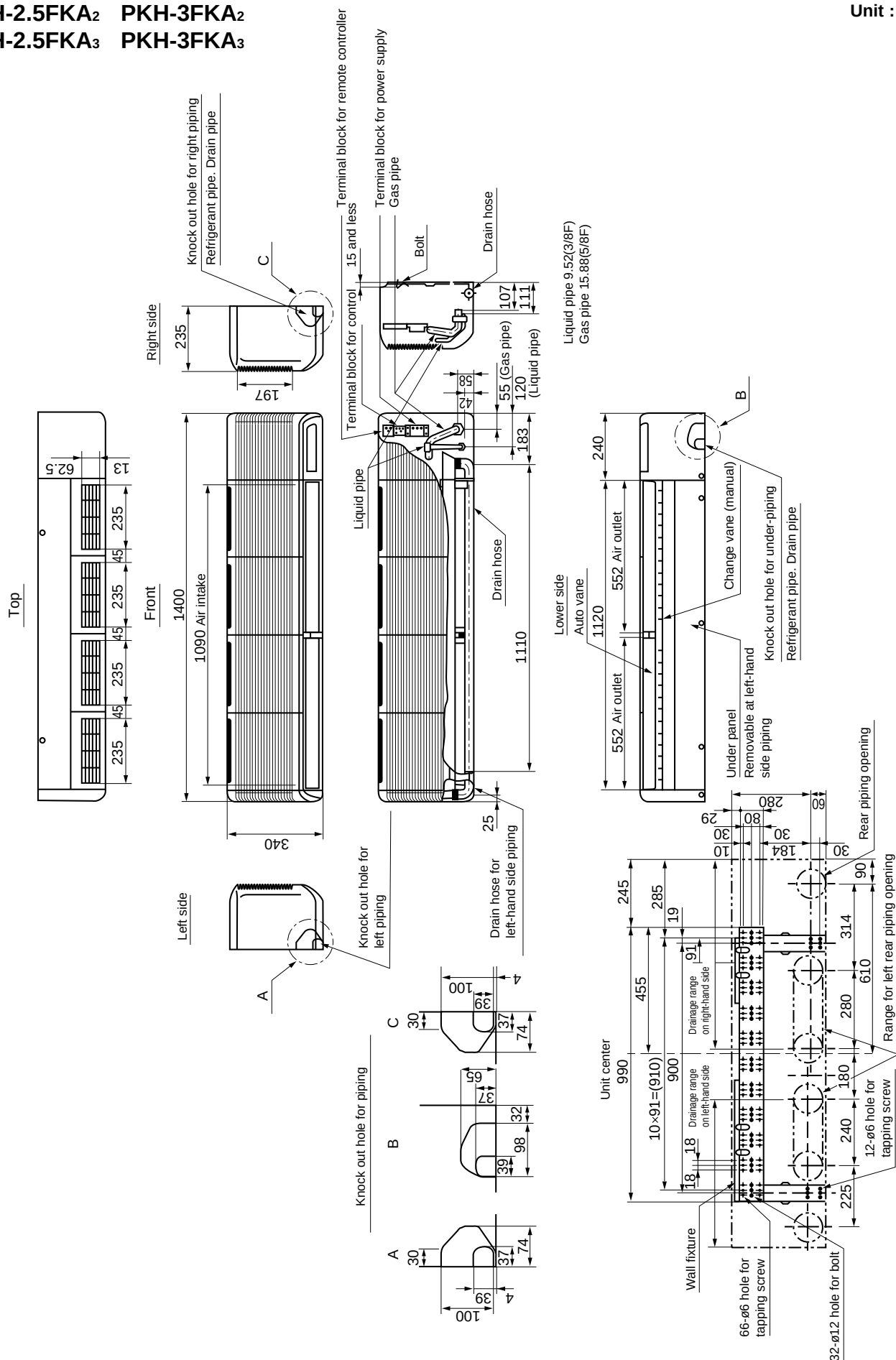
The coverage range should be used only as a general guideline since it varies according to the size of the room and the furniture inside the room.

Unit : mm



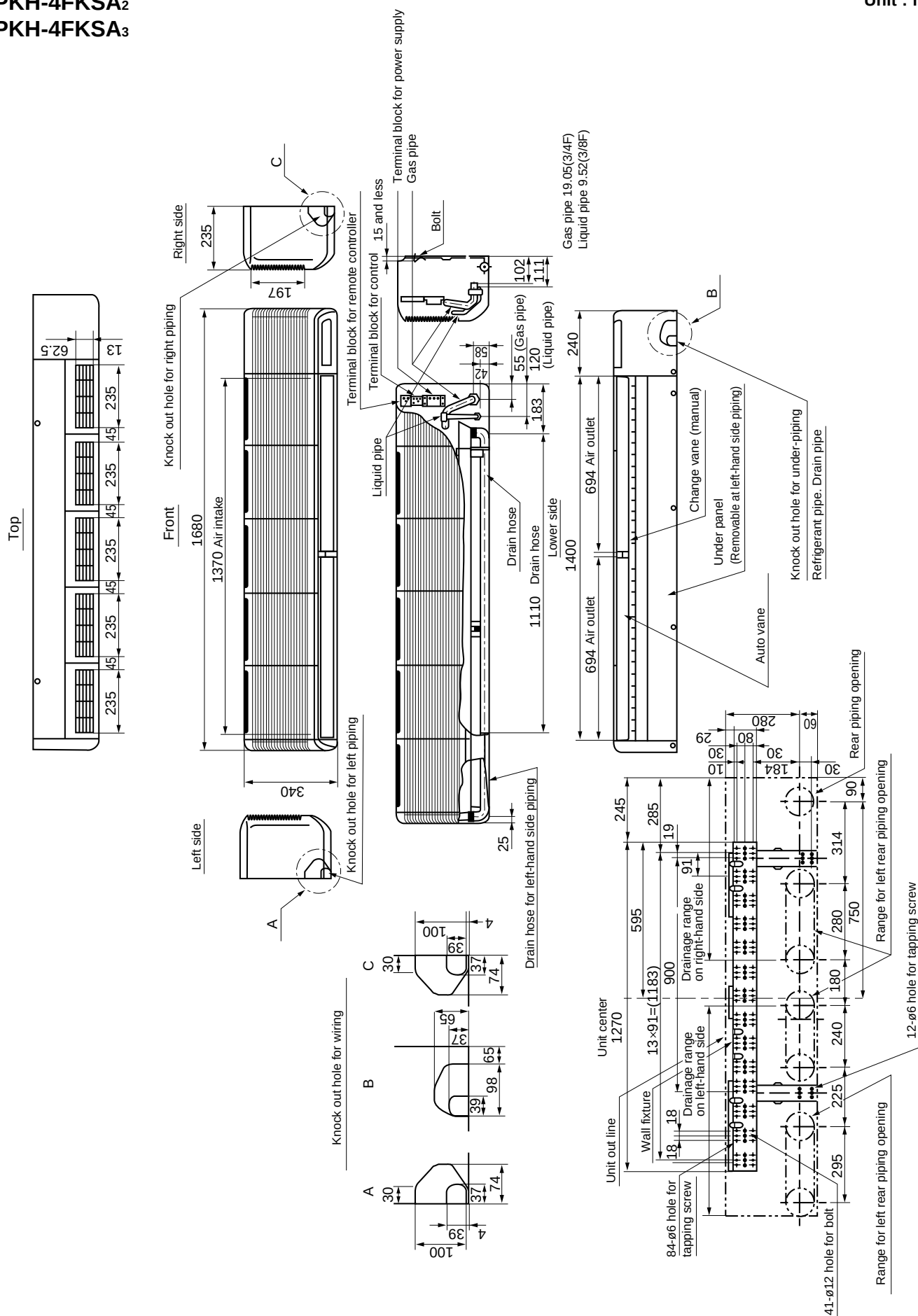
PKH-2.5FKA₂ PKH-3FKA₂
PKH-2.5FKA₃ PKH-3FKA₃

Unit : mm



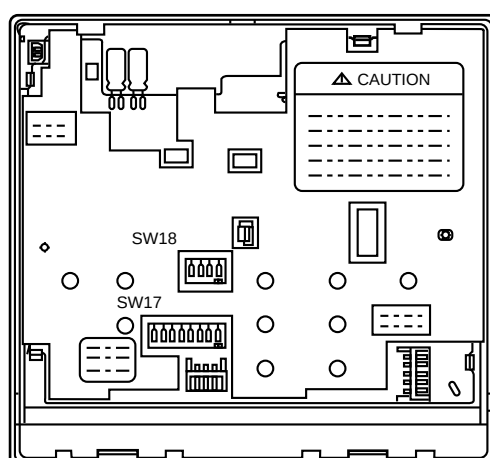
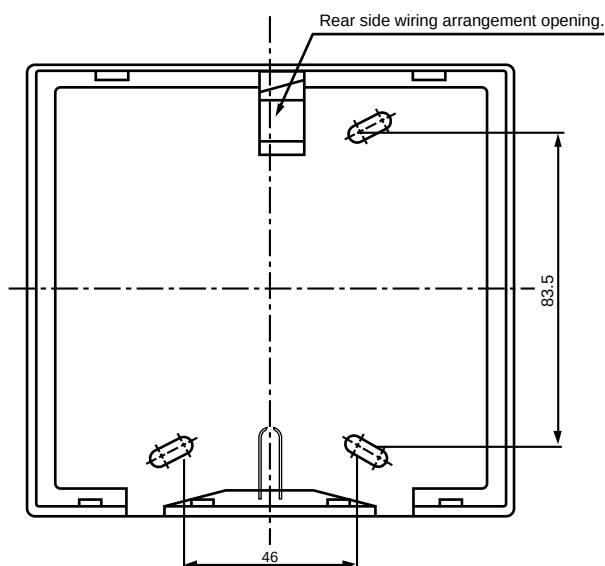
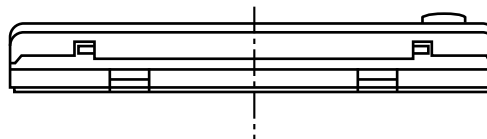
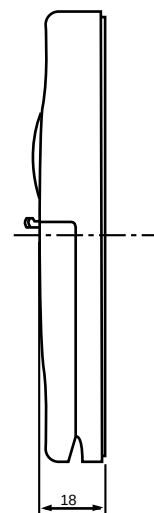
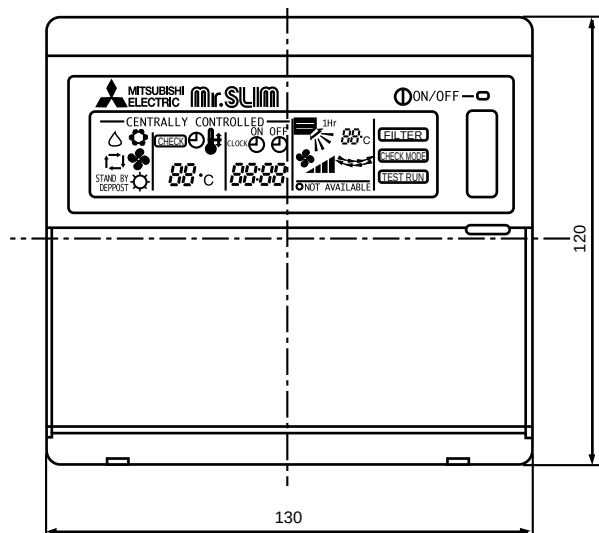
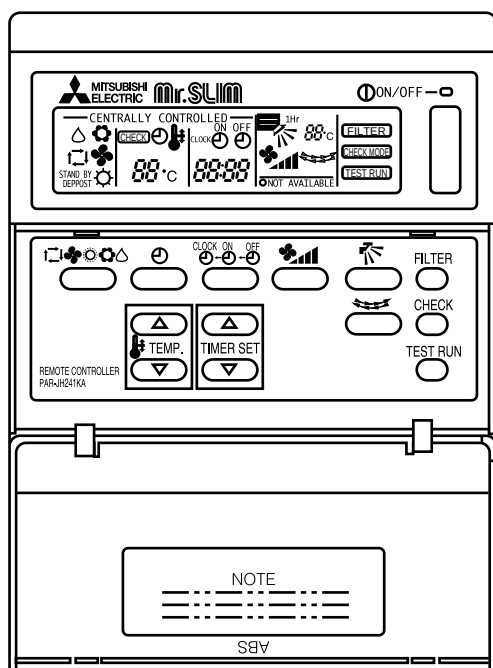
PKH-4FKSA₂
PKH-4FKSA₃

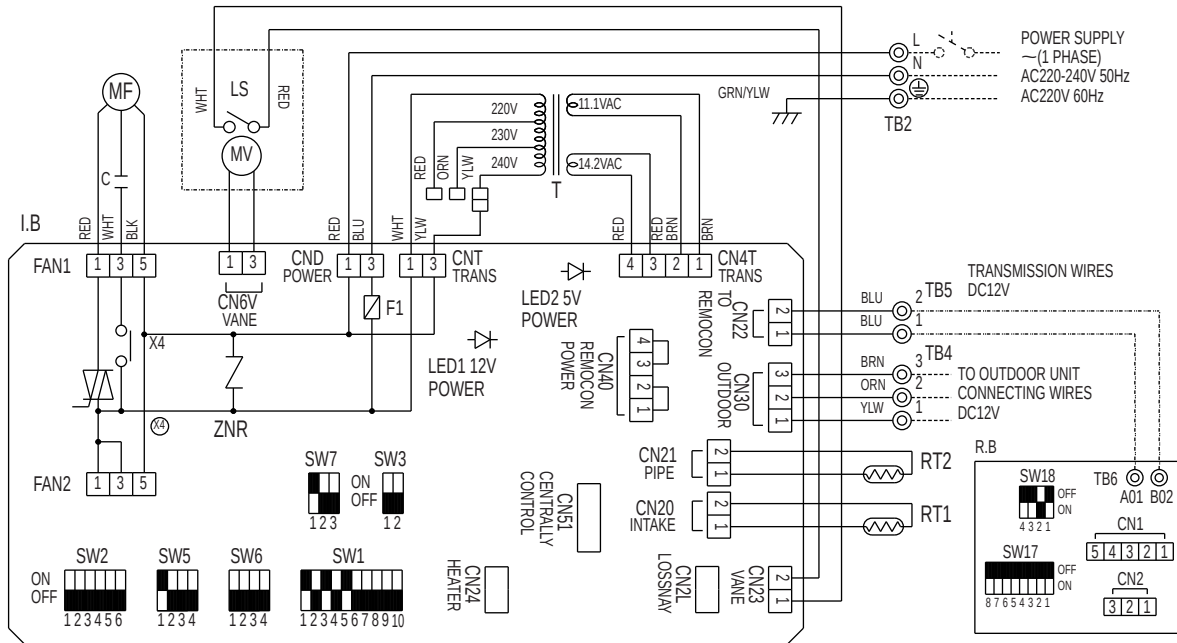
Unit : mm



2. REMOTE CONTROLLER

Unit : mm(inch)



PKH-2FKA₃

SYMBOL	NAME	SYMBOL	NAME
C	FAN MOTOR CAPACITOR	RT2	PIPE TEMPERATURE THERMISTOR (0°C/15KΩ. 25°C/5.4KΩ DETECT)
CN1<R.B>	PROGRAM TIMER CONNECTOR	SW1<I.B>	MODE SELECTOR
CN2<R.B>	REMOTE SWITCH CONNECTOR	SW2<I.B>	ADDRESS SELECTOR
CN2L<I.B>	LOSSNAY CONNECTOR	SW3<I.B>	EMERGENCY OPERATION SWITCH
CN51<I.B>	CENTRALLY CONTROL CONNECTOR	SW5.6<I.B>	MODEL SELECTOR
FAN2	EMERGENCY OPERATION CONNECTOR	SW7<I.B>	MODEL SELECTOR
F1<I.B>	FUSE (6.3A 250V)	SW17<R.B>	ADDRESS SELECTOR
I.B	INDOOR CONTROLLER BOARD	SW18<R.B>	FUNCTION SELECTOR
LED1<I.B>	DC 12V POWER LED	T	TRANSFORMER
LED2<I.B>	DC 5V POWER LED	TB2	POWER SUPPLY TERMINAL BLOCK
LS	LIMIT SWITCH	TB4	INDOOR/OUTDOOR CONNECTING WIRE TERMINAL BLOCK
MF	FAN MOTOR	TB5.6	REMOTE CONTROLLER TRANSMISSION LINE TERMINAL BLOCK
MV	VANE MOTOR	X4<I.B>	FAN MOTOR RELAY
R.B	REMOTE CONTROLLER BOARD	ZNR	VARIATOR
RT1	ROOM TEMPERATURE THERMISTOR (0°C/15KΩ. 25°C/5.4KΩ DETECT)		

NOTES:

1. Since the indoor fan motor (MF) is connected with 230, 240V power, using 220V power will require a setting change of the dip switch (SW7<I.B>) on the indoor controller board as shown in fig : * 1.

fig *1 Indoor fan motor (MF) for 220V. SW5 ON OFF 1 2 3 4 → ON OFF 1 2 3 4

2. Since the indoor transformer (T) is connected with 240V power, if 220,230V power is used. Change the wiring connection showing fig : * 2.

fig *2 When power supply is

240V	YELLOW
230V	ORANGE
220V	RED

3. Since the indoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.

4. Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers.

5. Symbols used in wiring diagram above are, □ : Connector. ⊙ : Terminal block.

6. Emergency operation

If remote controller of microcomputer fails but there is no other trouble, emergency operation is possible by setting dip switch (SW3<I.B>) on the indoor controller board.

[Check items]

- (1) Make sure that no other trouble exist the outdoor unit. Trouble with the outdoor unit prevents emergency operation.

(If any trouble exists the outdoor unit error code "P8" will be displayed on the remote controller and the trouble position will be shown on the outdoor controller board LED. See electric wiring diagram of the outdoor unit for details.)

- (2) Make sure that there is no trouble with the indoor fan.

Emergency operation will be continuous operation mode due to power ON/OFF (ON/OFF with the remote controller is not possible).

[Emergency operation procedure]

- (1) Set the dip switch (SW3<I.B>) on the indoor controller board to ① on and ② off for cooling and ① - ② on for heating.

- (2) Turn on outdoor unit side circuit breaker, then indoor unit side circuit breaker.

In this order.

- (3) During emergency operation indoor fan runs at high speed but automatic vane remains stop.

- (4) Thermostat will not function. Cold air blows out for defrosting during heating thus do not operate defrosting for along time.

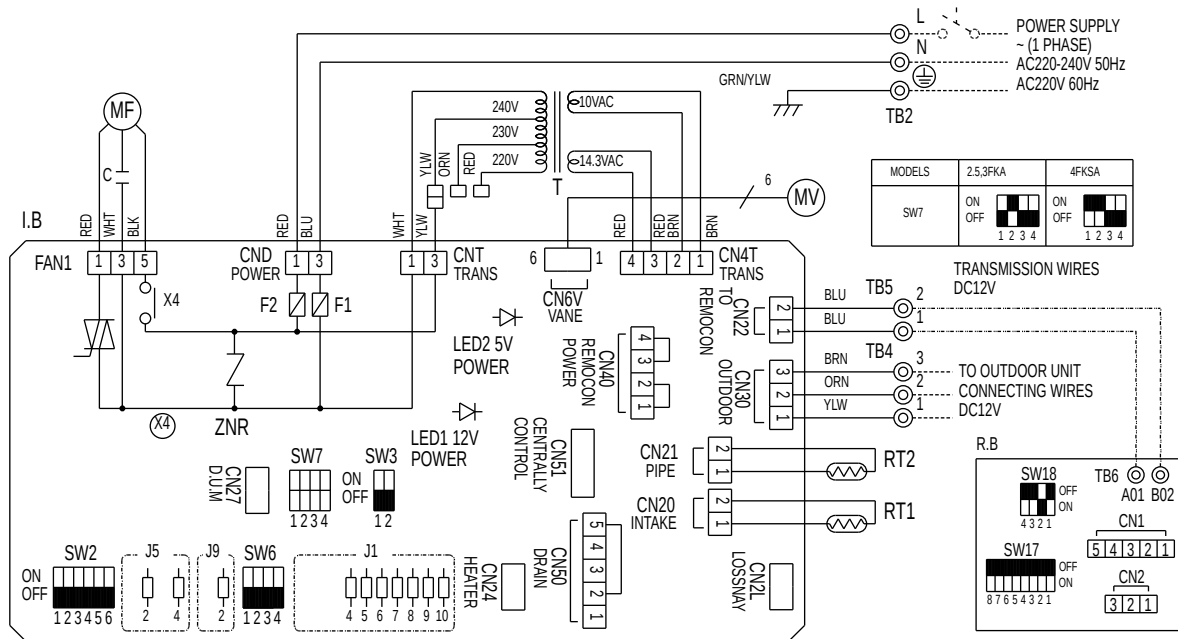
- (5) Emergency cooling should be limited to 10 hours maximum.

(The indoor unit heat exchanger may freeze).

- (6) After each operation, and set all dip switches (SW3<I.B>) to OFF.

BG79N618H01

PKH-2.5FKA₂ PKH-3FKA₂ PKH-4FKSA₂
PKH-2.5FKA₃ PKH-3FKA₃ PKH-4FKSA₃

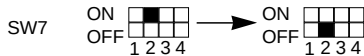


SYMBOL	NAME	SYMBOL	NAME
C	FAN MOTOR CAPACITOR	RT1	ROOM TEMPERATURE THERMISTOR (0°C/15KΩ. 25°C/5.4KΩ DETECT)
CN1<R.B>	PROGRAM TIMER CONNECTOR		
CN2<R.B>	REMOTE SWITCH CONNECTOR	RT2	PIPE TEMPERATURE THERMISTOR (0°C/15KΩ. 25°C/5.4KΩ DETECT)
CN2L<I.B>	LOSSNAY CONNECTOR		
CN27<I.B>	DRAIN LIFT-UP MECHANISM CONNECTOR	SW2<I.B>	ADDRESS SELECTOR
CN51<I.B>	CENTRALLY CONTROL CONNECTOR	SW3<I.B>	EMERGENCY OPERATION SWITCH
F1, 2 <I.B>	FUSE (6.3A 250V)	SW6<I.B>	MODEL SELECTOR
I.B	INDOOR CONTROLLER BOARD	SW7<I.B>	MODEL SELECTOR
J1	MODE SELECTOR JUMPER RESISTOR	SW17<R.B>	ADDRESS SELECTOR
J5	MODE SELECTOR JUMPER RESISTOR	SW18<R.B>	FUNCTION SELECTOR
J9	MODE SELECTOR JUMPER RESISTOR	T	TRANSFORMER
LED1<I.B>	DC 12V POWER LED	TB2	POWER SUPPLY TERMINAL BLOCK
LED2<I.B>	DC 5V POWER LED	TB4	INDOOR/OUTDOOR CONNECTING WIRE TERMINAL BLOCK
MF	FAN MOTOR	TB5.6	REMOTE CONTROLLER
MV	VANE MOTOR		TRANSMISSION LINE TERMINAL BLOCK
R.B	REMOTE CONTROLLER BOARD	X4<I.B>	FAN MOTOR RELAY
		ZNR	VARISTOR

NOTES:

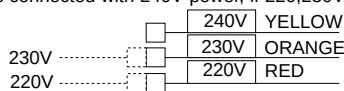
1. Since the indoor fan motor (MF) is connected with 230, 240V power, using 220V power will require a setting change of the dip switch (SW7<I.B>) on the indoor controller board as shown in fig : * 1.

fig *1 Indoor fan motor (MF) for 220V.



2. Since the indoor transformer (T) is connected with 240V power, if 220,230V power is used. Change the wiring connection showing fig : * 2.

fig *2 When power supply is



3. Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.

4. Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers.

5. Symbols used in wiring diagram above are, : Connector. : Terminal block.

- ## 6. Emergency operation

If remote controller or microcomputer fails but there is no other trouble, emergency operation is possible by setting dip switch (SW3<I.B>) on the indoor controller board.

[Check items]

- (1) Make sure that no other trouble exist the outdoor unit. Trouble with the outdoor unit prevents emergency operation.

(If any trouble exists the outdoor unit error code "P8" will be displayed on the remote controller and the trouble position will be shown on the outdoor controller board LED. See electric wiring diagram of the outdoor unit for details.)

- (2) Make sure that there is no trouble with the indoor fan.

Emergency operation will be continuous operation mode due to power ON/OFF(ON/OFF with the remote controller is not possible).

[Emergency operation procedure]

- (1) Set the dip switch (SW3<I.B>) on the indoor controller board to ① on and ② off for cooling and ① - ② on for heating.

- (2) Turn on outdoor unit side circuit breaker, then indoor unit side circuit breaker.

In this order.

- (3) During emergency operation indoor fan runs at high speed but automatic vane remains stop.

- (4)Thermostat will not function. Cold air blows out for defrosting during heating thus do not operate defrosting for along time.

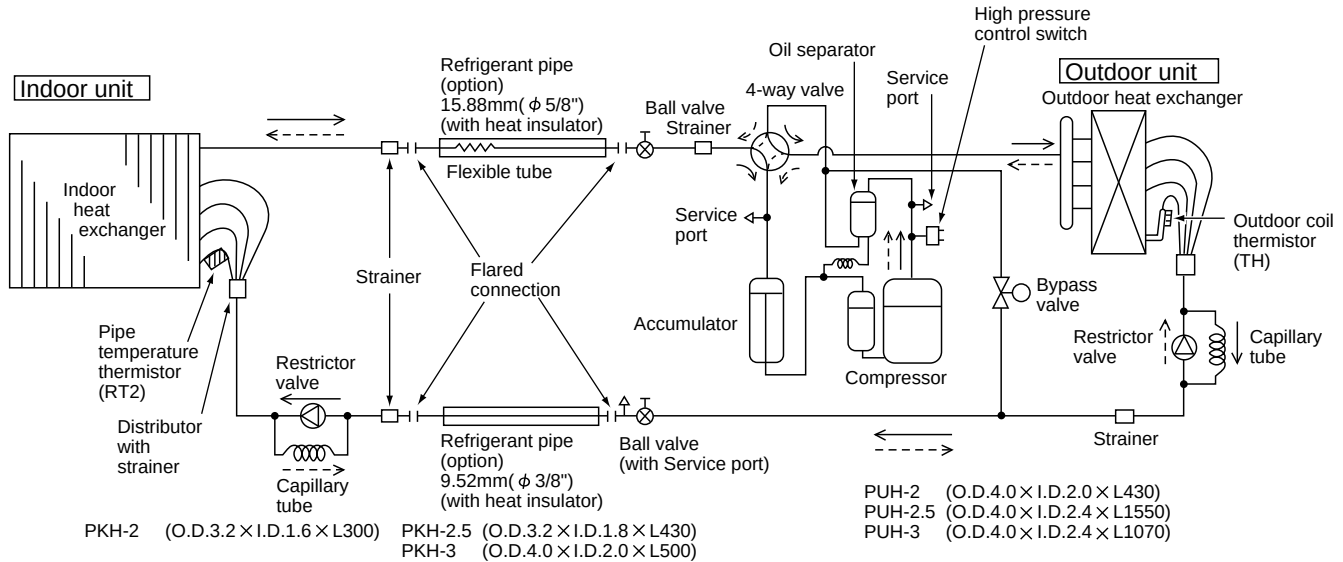
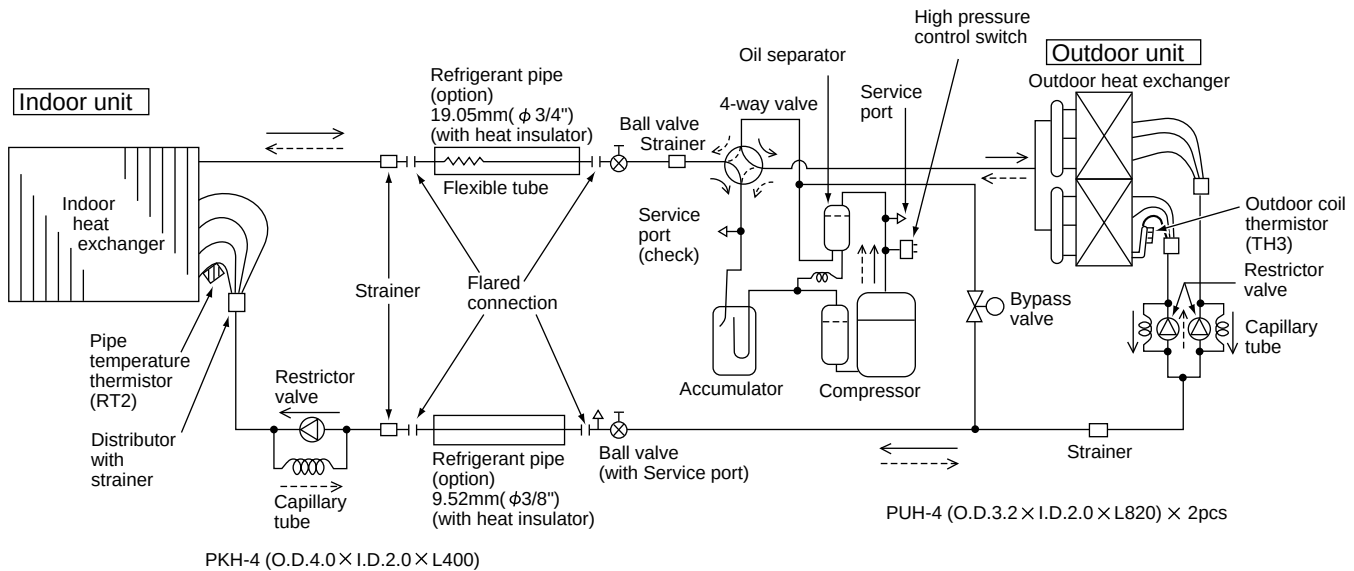
- (5) Emergency cooling should be limited to 10 hours maximum.

(The indoor unit heat exchanger may freeze).

- (6) After each operation, set all dip switches (SW3<I.B>) to OFF.

PKH-2FKA₃PKH-2.5FKA₂ , PKH-2.5FKA₃PKH-3FKA₂ , PKH-3FKA₃/ PUH-2VKA₂ , PUH-2VKA₃/ PUH-2.5VKA₂ , PUH-2.5VKA₃/ PUH-3VKA₂ , PUH-3VKA₃/ PUH-3YKA₂ , PUH-3YKA₃ , PUH-3YKA₄

Unit : mm

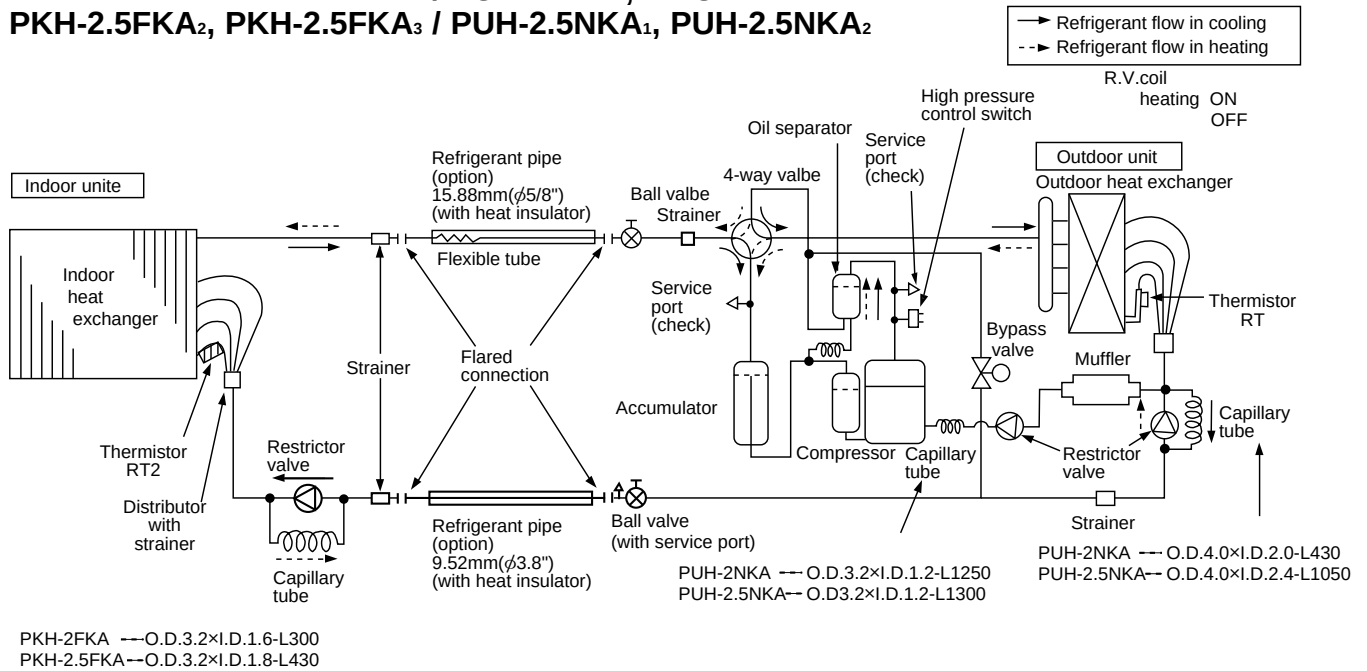
PKH-4FKSA₂ , PKH-4FKSA₃ / PUH-4YKSA₃ , PUH-4YKSA₄

→ Refrigerant flow in cooling
 - - - - - Refrigerant flow in heating

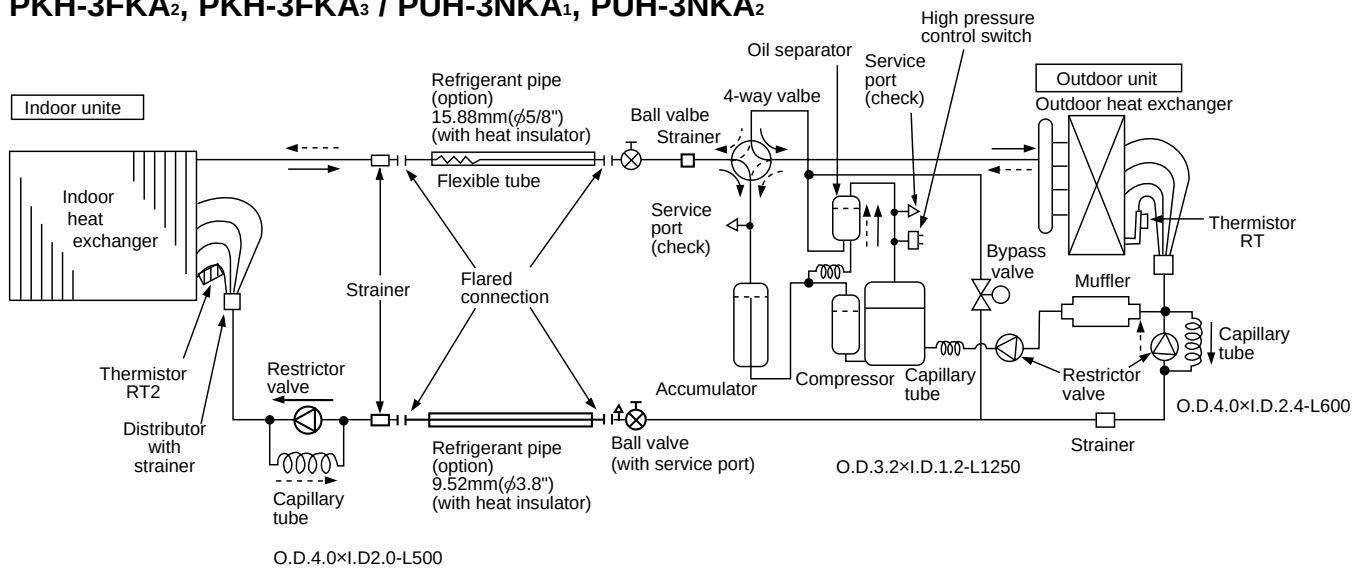
R.V. coil
 Heating:ON
 Cooling:OFF

PKH-2FKA₃ / PUH-2NKA₁, PUH-2NKA₂
PKH-2.5FKA₂, PKH-2.5FKA₃ / PUH-2.5NKA₁, PUH-2.5NKA₂

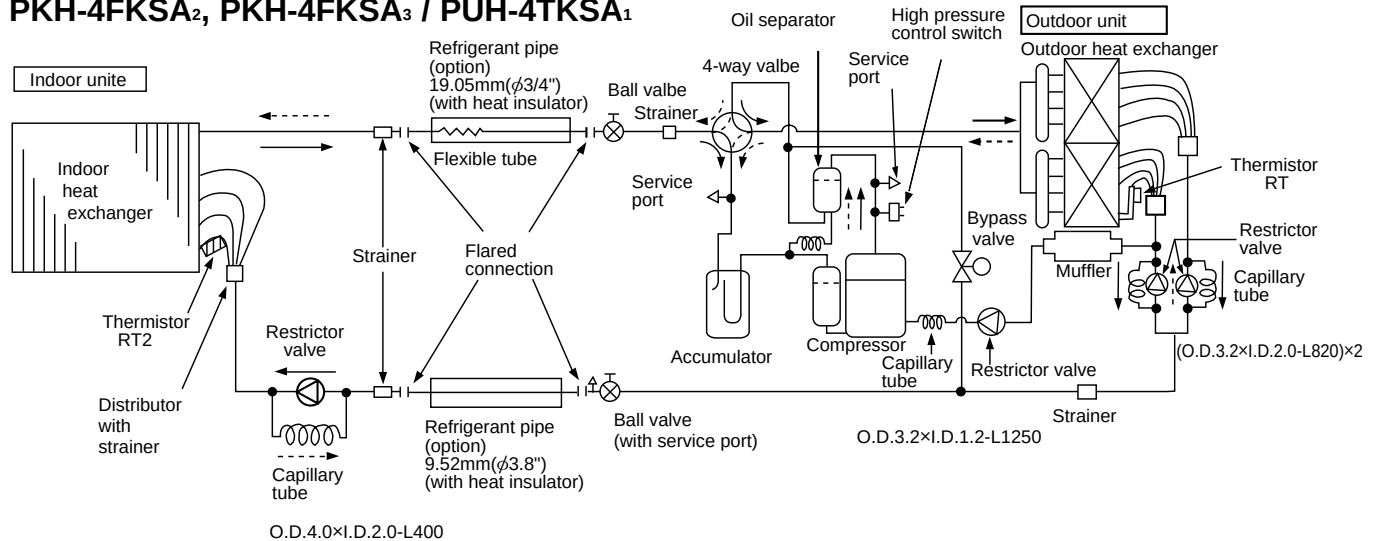
Unit : mm



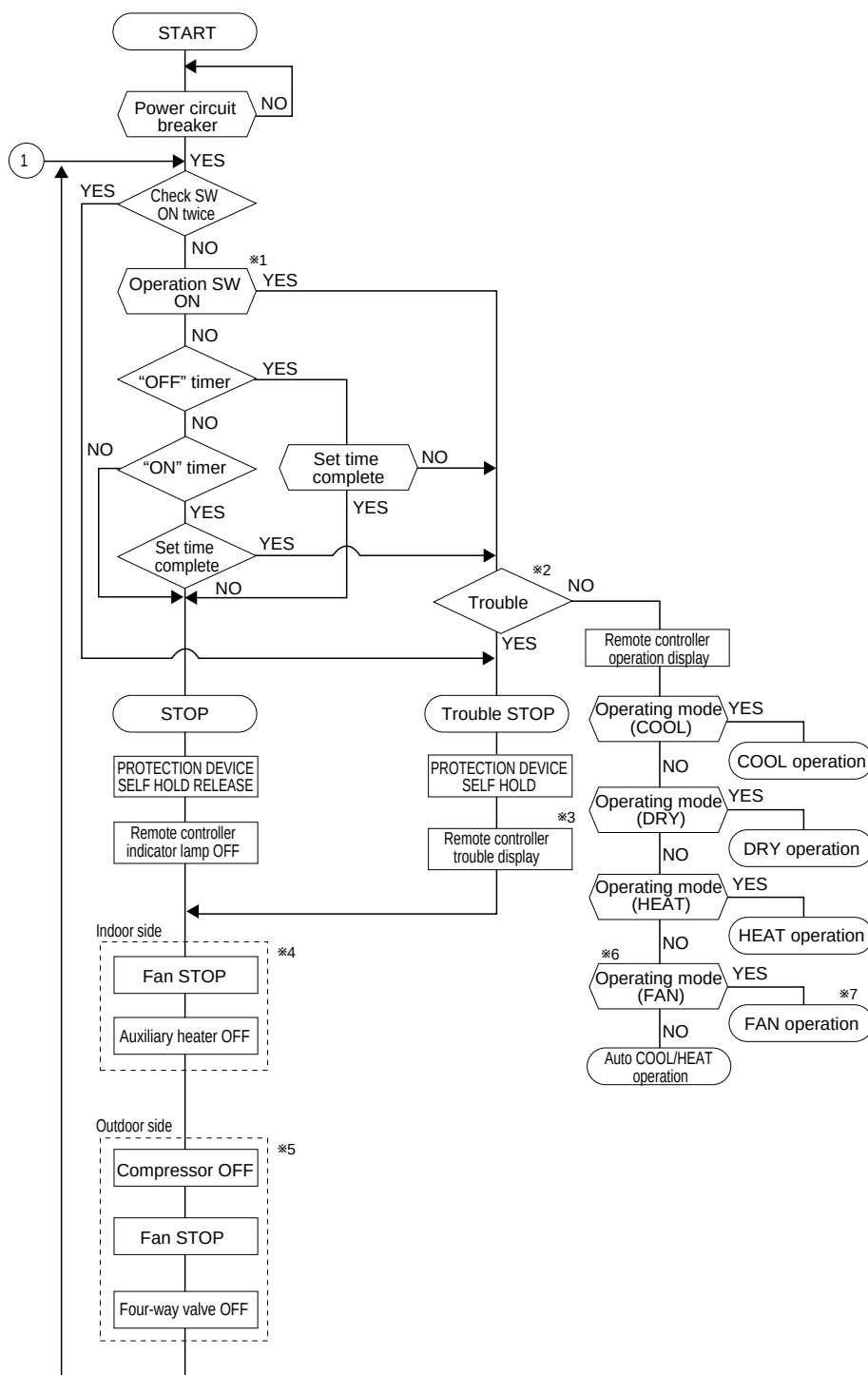
PKH-3FKA₂, PKH-3FKA₃ / PUH-3NKA₁, PUH-3NKA₂



PKH-4FKSA₂, PKH-4FKSA₃ / PUH-4TKSA₁



MAIN OPERATION



※1 In addition, the centralized control and remote control can be operated.

※2 The modes which indicate the sources of trouble are listed below.

- EO=Signal transmitting/receiving error
- P1=Room temperature thermistor malfunction
- P2=Indoor coil thermistor malfunction
- P4=Drain sensor malfunction
- P5=Drain overflow
- P6=Coil frost/overheat protection
- P7=System error
- P8=Outdoor unit trouble

※3 The CHECK switch will show if an error has occurred in the past.

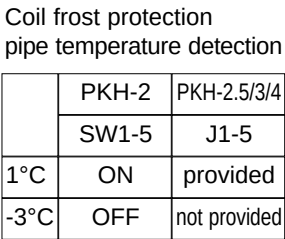
※4 Fan runs on low speed for 1 minute in order to remove overheat air.

※5 The 3-minute (6 minutes ... heating mode) time-delay functions after compressor stops.

※6 FAN or AUTO mode is selected by the indoor dip switch setting.

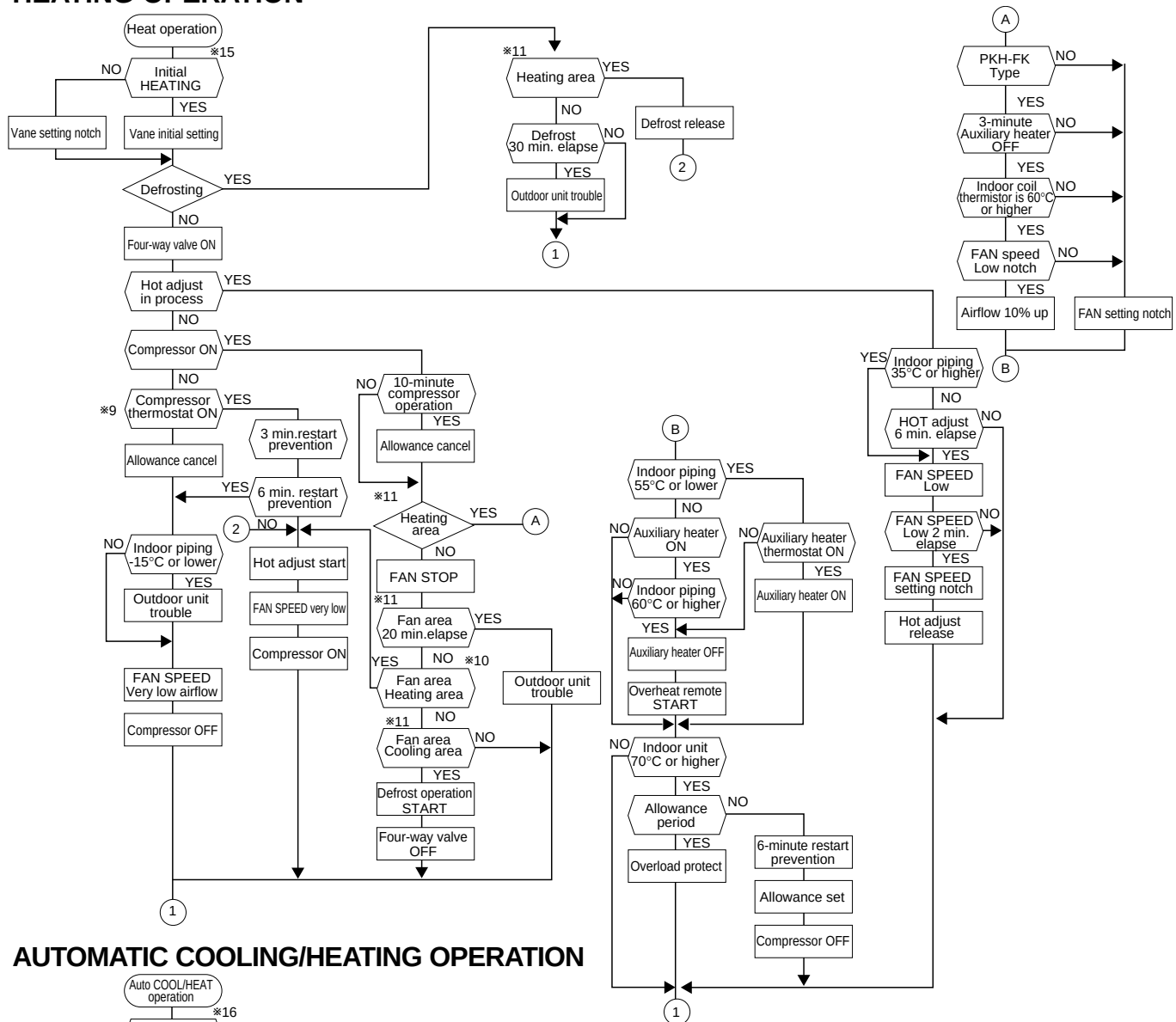
※7 In FAN mode, fan speed and vane operation depend on the remote controller setting. (Compressor is OFF.)

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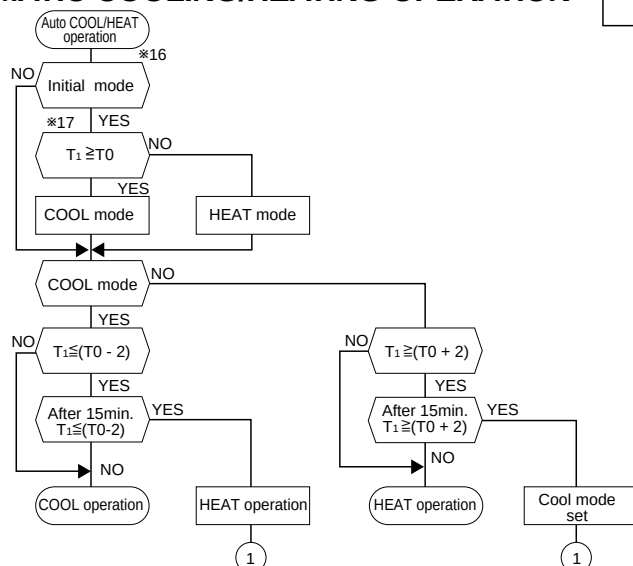


- 29

HEATING OPERATION



AUTOMATIC COOLING/HEATING OPERATION



*15 (i) Until Low airflow is set while hot adjustment

(ii) While defrosting (FAN STOP)

(iii) When thermostat is OFF

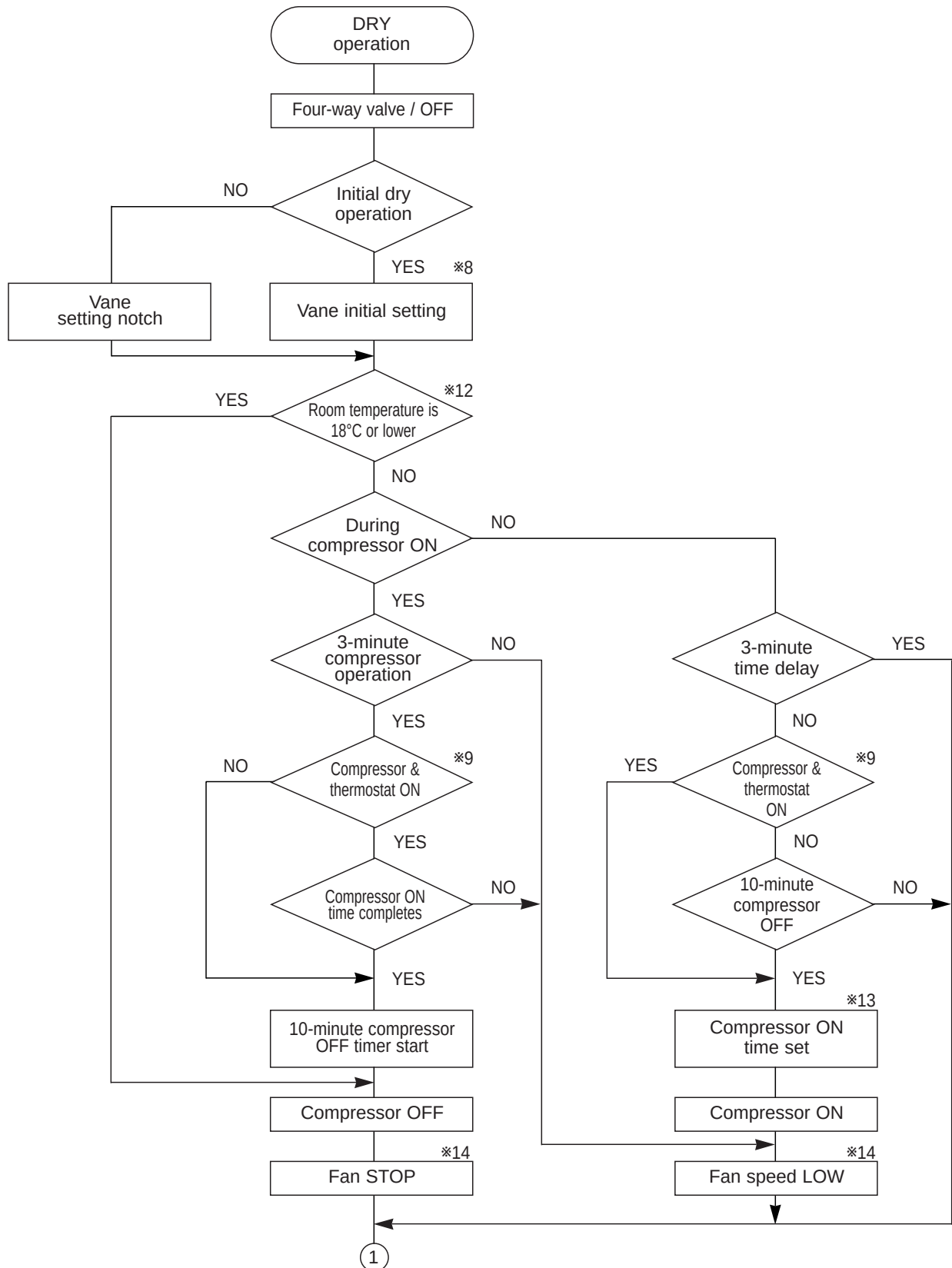
In the case of (i), (ii) and (iii) above, airflow is horizontal regardless the VANE setting.

*16 When AUTO operation is started, COOL or HEAT mode is selected automatically.

*17 T1 : Room temperature.

To : Set temperature

DRY OPERATION



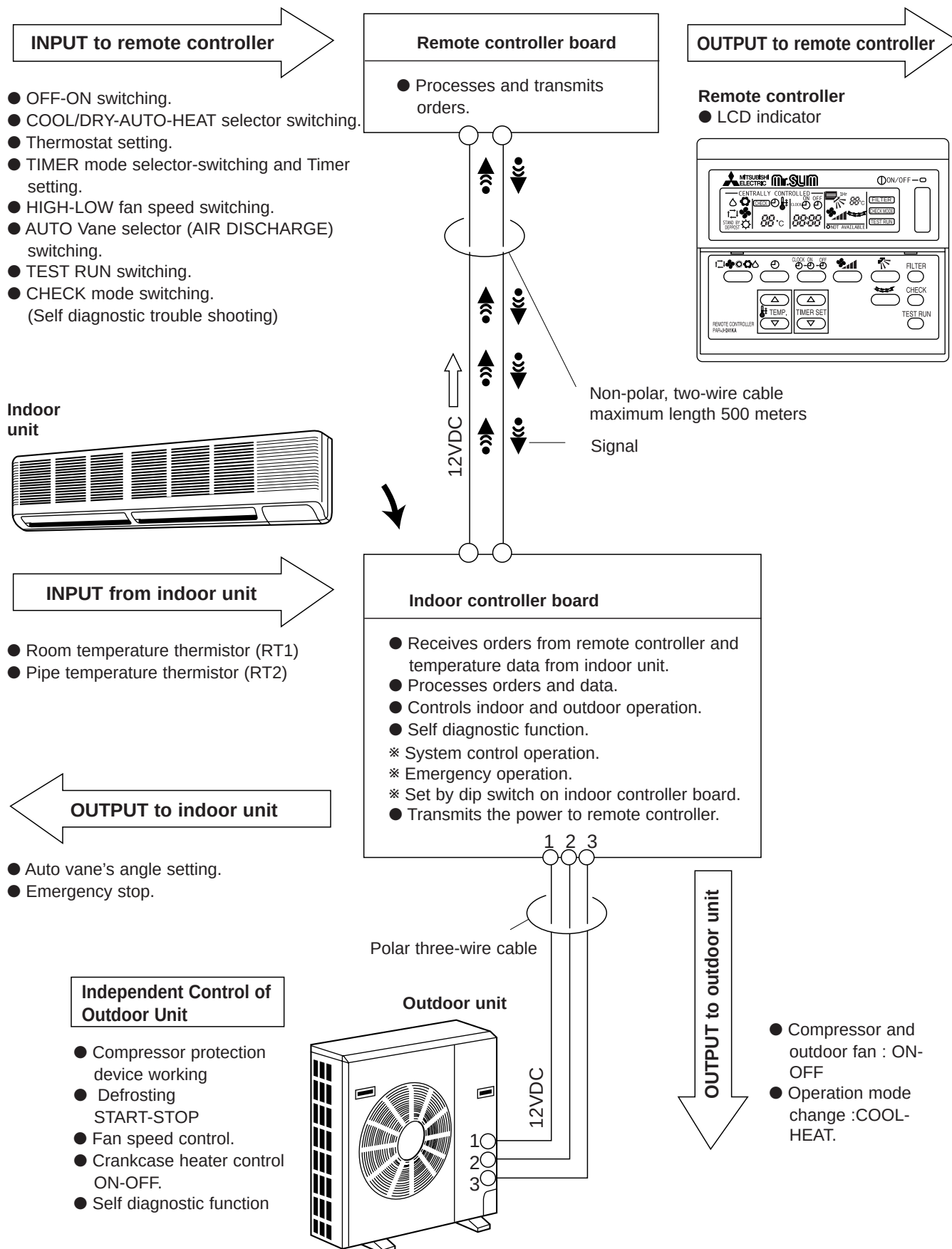
*8—9 Refer to page 29.

*12 When room temperature is 18°C or below, the compressor cannot operate.
When room temperature rises over 18°C, the compressor starts after a 3-minute time delay.

*13 Compressor ON time is decided by room temperature. Refer to page 38.

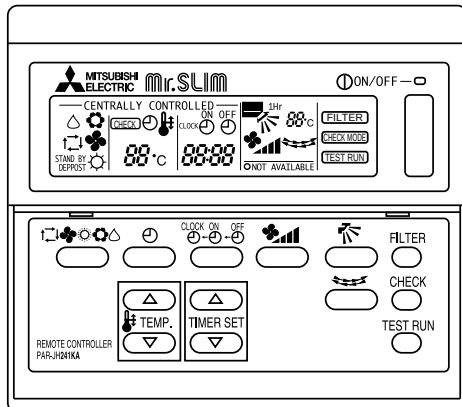
*14 In dry operation, compressor ON makes the fan speed LOW and compressor OFF stops the fan.
It is not possible to set the fan speed with the remote controller

1. OUTLINE OF MICROPROCESSOR CON-



2. INDOOR UNIT CONTROL

2-1 COOL operation

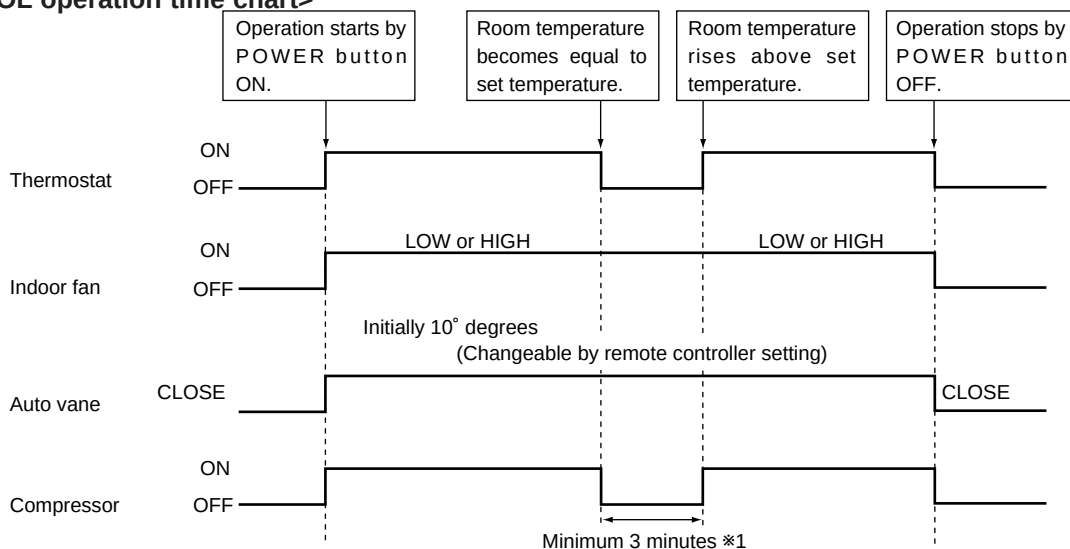


<How to operate>

- ① Press POWER ON/OFF button.
- ② Press the button to display "❄".
- ③ Press the TEMP button to set the desired temperature.

NOTE: The set temperature changes 1°C when the or button is press one time Cooling 19 to 30°C.

<COOL operation time chart>



*1 Even if the room temperature rises above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when room temperature is higher than set temperature.

The compressor stops when room temperature is equal to or lower than the set temperature.

③ The compressor stops in check mode or during protective functions.

④ Coil frost prevention

To prevent indoor coil frost, the compressor will stop when the indoor coil thermistor (RT2) reads 1°C or below after the compressor has been continuously operated for at least 16 minutes or more. When the indoor coil temperature rises to 10°C or above, the compressor will start after a 3-minute time delay.

NOTE : By turning OFF the dip switch SW1-5, PKH-2.5/3/4 for J1-5 on indoor controller board, the start temperature of coil frost prevention changes 1°C to -3°C.

⑤ Coil frost protection

When indoor coil temperature becomes -15°C or below, coil frost protection will proceed as follows.

<Start condition>

After the compressor has been continuously operated for 3 minutes or more, and the indoor coil temperature has been -15°C or below for 3 minutes, the coil frost protection will start.

<Coil frost protection>

Compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again during the first 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of "P8" on the remote controller.

<Termination conditions>

Coil frost protection is released when the start condition is not satisfied again during the allowance, or when the COOL mode stops or changes to another mode.

(2) Indoor fan control

Indoor fan speed LOW/HIGH depends on the remote controller setting.

However, if an outdoor unit abnormality is detected, the indoor fan speed will be LOW, regardless of the remote controller setting.

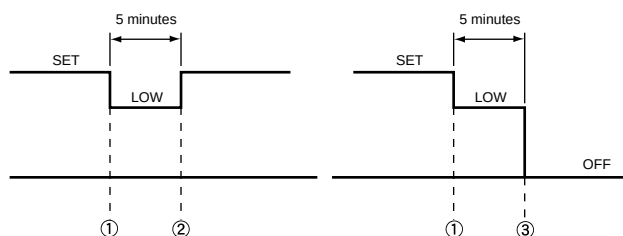
When the outdoor unit abnormality detection is released and the fan speed returns to the set speed, the quiet cycle control will work.

(a) Normal control

(i) Fan speed LOW/HIGH depends on the remote controller setting regardless of the thermostat ON/OFF.

(ii) Fan speed will remain on LOW if an abnormality in outdoor unit is detected. (5 minutes)

When the abnormality detection is released, the fan speed returns to the set speed.



- ① Start-up of outdoor unit abnormality detection.
- ② Release of outdoor unit abnormality detection.
- ③ Unit stop due to outdoor unit abnormality with P8 indication.

NOTE 1 : Fan stops immediately if the unit stops or the check mode is started.

(3) Auto vane control

Auto vane position is set to 10degrees discharge at the start-up of COOL operation. It can then be changed by the remote controller.

(a) Stop mode (fixed operation)

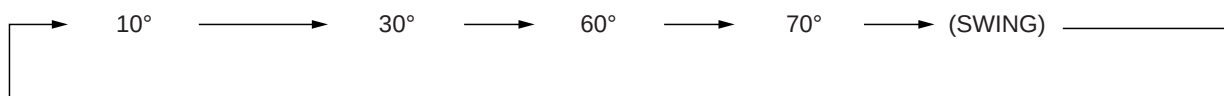
(i) At start-up of COOL operation, the auto vane is set to 10 degrees discharge direction.

(ii) Discharge direction can be changed with AIR DISCHARGE UP/DOWN button.

① Fan speed : LOW



② Fan speed : HIGH



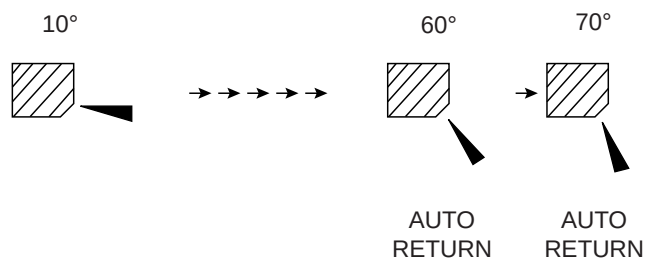
(b) SWING mode (Only PKH-2.5/3/4FK(S)A)

(i) The vane motor turns ON when the SWING mode is selected.

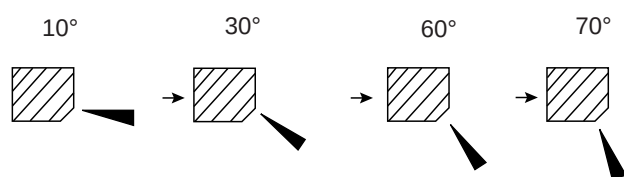
The vane motor is continuously ON during SWING mode.

<AUTO RETURN>

① Fan speed : LOW



② Fan speed : HIGH



When 60 degrees or 70 degrees discharge is selected with the LOW fan speed in COOL operation, "1Hr" will appear below the temperature display. One hour later, the discharge direction returns to 10 degrees automatically and "1Hr" will disappear. If the discharge direction is set to 10 degrees during "1Hr" indication, the time counting for AUTO RETURN is cancelled.

<Auto vane drive> (PKH-2FKA₃)

(a) The auto vane is driven by a 2.5 rpm motor.

(b) Discharge direction can be selected between the No.1 and No.2 setting. (Initial setting is No.1)

①	②	③	④
10°	30°	60°	70°

(c) Vane motor drive time

Unit : sec.

Discharge direction change	50Hz	60Hz
Downward C → Horizontal ④→①	Rise 2.1	Rise 1.75
Horizontal → Downward A ①→②	0.65	0.55
Downward A → Downward B ②→③	6.7	5.55
Downward B → Downward C ③→④	0.65	0.55

(d) Discharge direction is based on the horizontal position detected by the vane motor limit switch. When the horizontal position can not be determined, the vane motor will remain ON until it is determined.

① If the horizontal position still can not be detected, despite the 10minute detection, the vane motor will turn OFF
Remote controller indication continues.

② After, if the vane motor receives the “auto vane ON” command again, it will restart detecting the horizontal position.
If the horizontal position still can not be determined, despite the 10-minute detection, the vane motor will turn OFF.

(PKH-2.5FKA₂, PKH-3FKA₂, PKH-4FKSA₂)

(PKH-2.5FKA₃, PKH-3FKA₃, PKH-4FKSA₃)

(a) The vane is driven by DC12V motor.

(b) Air discharge direction is selected depends on the number of pulse were sended.

(c) Before start driving the auto vane, detect the standard position first, output the number of pulse to each air discharge.

(d) The speed of the auto vane drive for both open and close are settled at 200 pulse/sec.

(e) Method of driving the auto vane.

① Detecting the standard position : Output 1600 pulse to the opening direction.

② Position setting : Output the number of pulse indicated no below chart to the closing direction.

	The number of pulse outputed after detecting the standard position
Close	1600
Horizontal	680
Downward A	578
Downward B	283
Downward C	113

(4) Detecting abnormalities in the outdoor unit

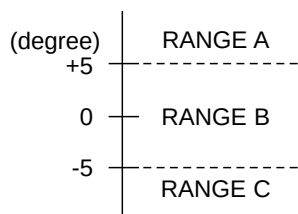
After the compressor has been continuously operated for 3 minutes, if the difference between the indoor coil temperature and room temperature is out of RANGE C for 1 minute, the indoor fan speed will turn to LOW. Five minutes later, if the difference is still out of RANGE C, the outdoor unit is functioning abnormally. Thus, the compressor stops and check code “P8” appears on remote controller.

RANGE A : Indoor coil temperature is more than 5 degrees above room temperature.

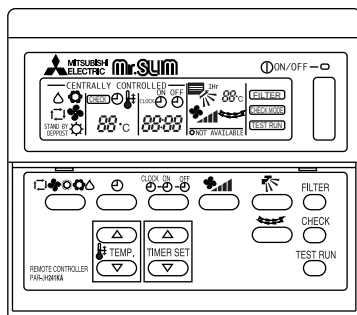
RANGE B : Indoor coil temperature is within 5 degrees either way of room temperature.

RANGE C : Indoor coil temperature is more than 5 degrees below room temperature.

Indoor coil temperature
minus room temperature



2-2 DRY operation

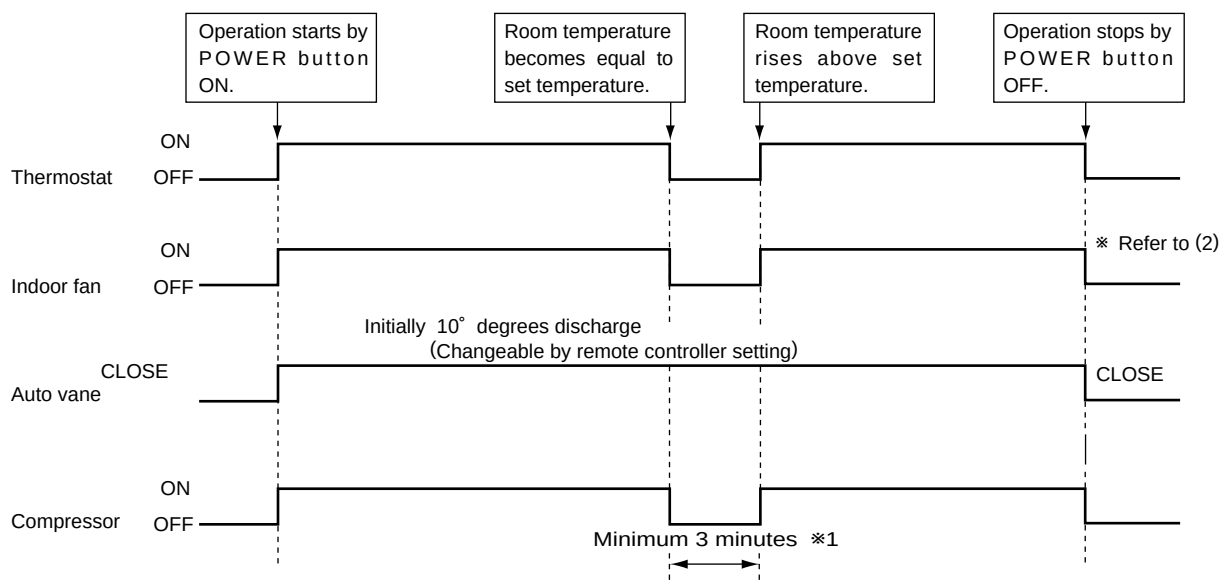


<How to operate>

- ① Press POWER ON/OFF button.
- ② Press the button to display "△".
- ③ Press the TEMP button to set the desired temperature.

NOTE: The set temperature changes 1°C when the or button is press one time Cooling 19 to 30°C.

<DRY operation time chart>



*1 Even if the room temperature rise above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when the room temperature is higher than the set temperature. The compressor stops when the room temperature is equal to or lower than the set temperature.

③ The compressor stops in check mode or during protective functions.

④ The compressor will not start when the room temperature is below 18°C.

The compressor starts intermittent operation when the power is turned ON with room temperature above 18°C. The compressor ON/OFF time depends on the thermostat ON/OFF and the following room temperatures.

After 3-minute compressor operation,

- If the room temperature thermistor reads above 28°C with thermostat ON, the compressor will operate for 6 more minutes and then stop for 3 minutes.

- If the room temperature thermistor reads 26°C ~ 28°C with thermostat ON, the compressor will operate for 4 more minutes and then stop for 3 minutes.

- If the room temperature thermistor reads 24°C ~ 26°C with thermostat ON, the compressor will operate for 2 more minutes and then stop for 3 minutes.

- If the room temperature thermistor reads below 24°C with thermostat ON, the compressor will stop for 3 minutes.

- If the thermostat is OFF regardless of room temperature, the compressor will stop for 10 minutes.

⑤ Coil frost protection

Coil frost protection in DRY operation is the same as in COOL operation.

⑥ Coil frost prevention

Coil frost prevention does not operate in DRY operation.

(2) Indoor fan control

<PKH-2.5/3/4>

The indoor fan runs on LOW speed during compressor operation. The fan speed cannot be changed with the remote controller. Also, the indoor fan does not run during compressor OFF.

<PKH-2>

(a) During compressor OFF

- When the indoor coil temperature is 6°C or above, the indoor fan will stop.

- When the indoor coil temperature is below 6°C, the indoor fan will run in DRY mode.

(b) During compressor ON

- The indoor fan runs on EXTRA-LOW speed for the first 1 minute after the compressor is turned on.

- After, the indoor fan runs in DRY mode.

<Dry mode>

The fan notch is controlled by the indoor coil temperature every 30 seconds.

Indoor coil temperature	Fan operation
Below -10°C	LOW speed
-10 to 0°C	EXTRA-LOW speed
Above 0°C	Dry mode

During compressor OFF, when the indoor coil temperature becomes 6°C or above, the indoor fan turns OFF immediately.

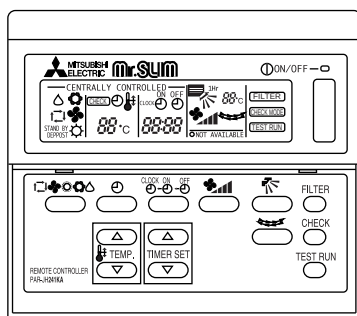
(3) Auto vane controls

Same as in COOL operation

(4) Detecting abnormalities in the outdoor unit

An abnormality in the outdoor unit can not be detected in DRY operation.

2-3 HEAT operation



<How to operate>

- ① Press POWER ON/OFF button.
- ② Press the button to display " ".
- ③ Press the TEMP button to set the desired temperature.

NOTE: The set temperature changes 1°C when the or button is press one time Cooling 17 to 28°C.

<Display in HEAT operation>

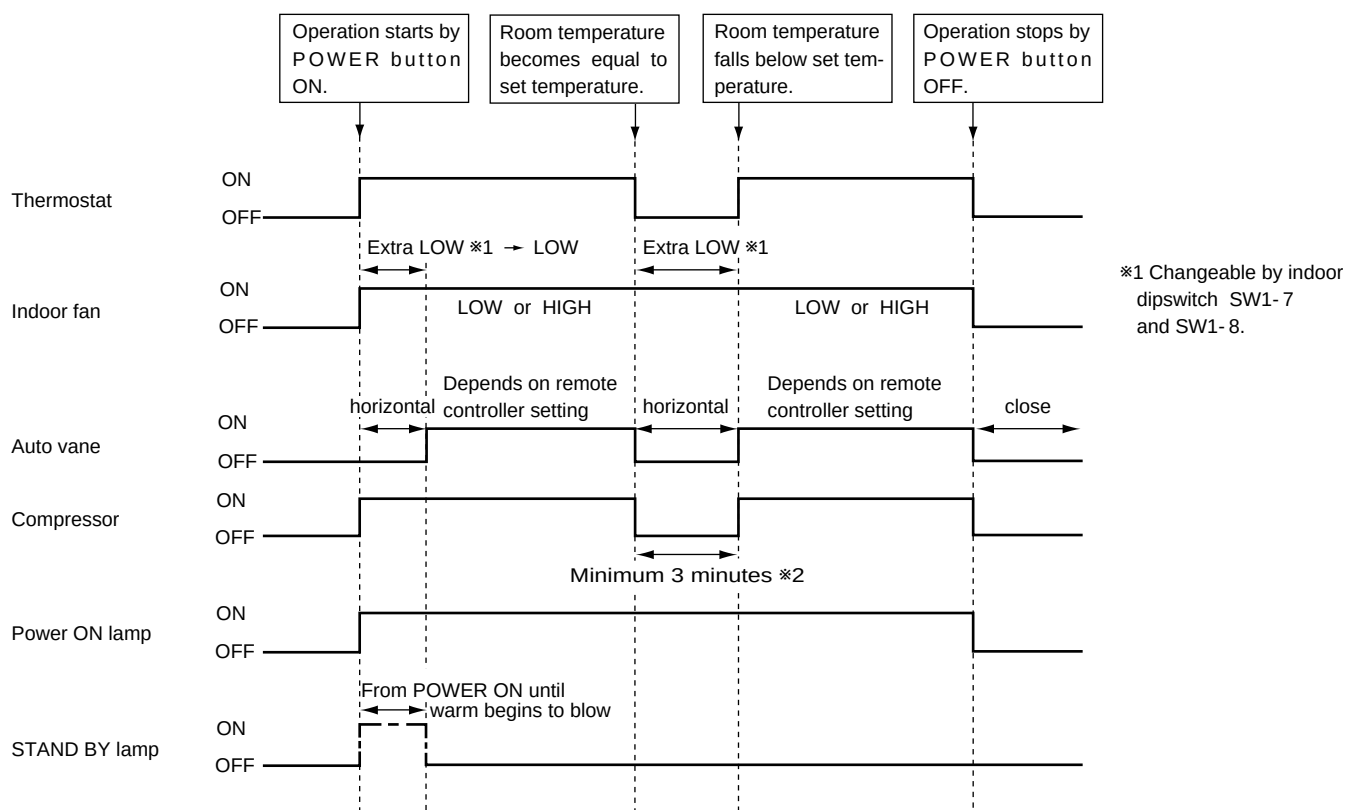
[DEFROST]

The [DEFROST] symbol is only displayed during the defrost operation.

[STANDBY]

The [STANDBY] symbol is displayed from the time the heating operation starts until the heated air begins to blow.

<HEAT operation time chart>



***2** Even if the room temperature rise above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay.

To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when the room temperature is lower than the set temperature. The compressor stops when the room temperature is equal to or higher than the set temperature.

③ The compressor stops in check mode or during protective functions.

④ Overheat protection

<Start condition>

When the indoor coil thermistor reads 70°C or above, the overheat protection will start.

<Overheat protection>

The compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again within 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of "P6" on the remote controller.

<Termination conditions>

Overheat protection is terminated when the start condition is not satisfied again during the allowance (10-minute compressor operation), when operation mode changes to other mode, or when thermostat turns OFF.

(2) Indoor fan control

(a) Normal control

(i) The indoor fan runs on EXTRA-LOW speed during the thermostat OFF.

EXTRA-LOW speed can be changed to LOW or HIGH speed by setting the dip switch SW1-7 and SW1-8, (PKH-2.5/3/4 for J1-7, J1-8). If the indoor coil temperature becomes more than 5 degrees below the room temperature during the thermostat OFF, the indoor fan will stop. After, when the indoor coil temperature becomes within 5 degrees of room temperature, the indoor fan will run on EXTRA-LOW speed.

(ii) Hot adjustment

Hot adjustment is a warm-up for HEAT operation

<Start conditions>

The hot adjustment works under any of the following conditions.

- HEAT operation starts.
- Defrosting ends.
- Thermostat turns ON

<Hot adjustment>

Initially, the indoor fan runs on EXTRA-LOW speed. When 5 minutes have passed or the indoor coil temperature exceeds 35°C, the fan speed changes to LOW. Two minutes later, the hot adjustment ends. Then, the fan speed depends on the remote controller setting.

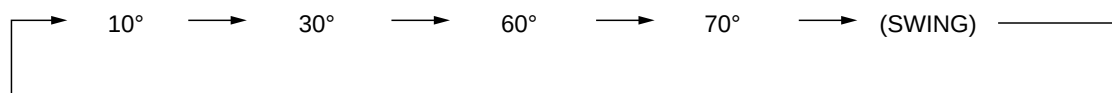
(iii) The indoor fan stops when the indoor coil temperature is within 5 degrees either way of room temperature.

(iv) To eliminate the remaining heat, the indoor fan runs for the first 1 minute after the booster heater is turned OFF.

(3) Auto vane control

(a) STOP mode (fixed operation)

- (i) The discharge direction at the start-up of HEAT operation is the same as that of the previous operation.
- (ii) The discharge direction can be changed by the remote controller setting.



In the following cases, discharge direction becomes 10° regardless of the remote controller setting.

- ① During the hot adjustment with fan speed at EXTRA-LOW
- ② During defrosting with indoor fan OFF
- ③ During the thermostat OFF

(b) SWING mode (Only for PKH-2.5FKA₂, PKH-2.5FKA₃, PKH-3FKA₂, PKH-3FKA₃, PKH-4FKSA₂, PKH-4FKSA₃)

- (i) The vane motor turns ON when the SWING mode is selected.
The vane motor is continuously ON during SWING mode.
- (ii) In the following cases, the discharge direction is 10° regardless of the remote controller setting.
 - ① During the hot adjustment with fan speed at EXTRA-LOW
 - ② During defrosting with indoor fan OFF
 - ③ During thermostat OFF

(4) Detecting abnormalities in the outdoor unit

When the outdoor unit is determined to be abnormal by the following causes, the compressor will stop and the check code " P8 " will appear on the remote controller display.

① During compressor ON after hot adjustment

- ① If the difference between the indoor coil temperature and room temperature is in the RANGE B, the indoor fan will stop.
 - ② Within 20 minutes after entering RANGE B (except for the first 10 seconds),
 - a) If the temperature difference enters RANGE A, the hot adjustment starts.
 - b) If the temperature difference is still in RANGE B, the outdoor unit is deemed abnormal.
 - c) If the temperature difference enters RANGE C, defrosting starts.
- Within 30 minutes after entering RANGE C,
- If the temperature difference does not return to RANGE B, the outdoor unit is deemed abnormal.
 - If the temperature difference returns to RANGE B, the next 20 minutes is an allowance period. If the difference enters RANGE A during the allowance, defrosting ends and the hot adjustment starts. If the difference does not enter RANGE A during the allowance, the outdoor unit is deemed abnormal.

② During compressor ON in hot adjustment

After 30 minutes of defrosting in hot adjustment, if the temperature difference is still in RANGE C, the outdoor unit is determined to be abnormal.

③ During compressor OFF

After 20 minutes of thermostat OFF, if the indoor coil thermistor reads -25°C or below, the outdoor unit is determined to be abnormal.

(5) Indoor coil thermistor abnormality detection

An abnormality can be detected during compressor ON, except for the following.

- For the first 30 minutes after the temperature difference between the indoor coil temperature and room temperature enters the RANGE C.
- When the temperature difference enters the RANGE C until it moves to the RANGE B.

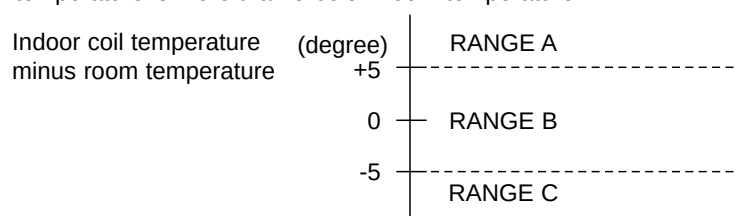
(6) Defrosting operation

After the outdoor unit starts the defrosting operation, when the temperature difference between the indoor coil temperature and room temperature gets out of RANGE A and into RANGE B, the indoor unit starts the defrosting mode. After the outdoor unit stops the defrosting operation, when the temperature difference returns to the RANGE A, the indoor unit stops the defrosting mode. While the indoor unit is in the defrosting mode, the indoor fan stop.

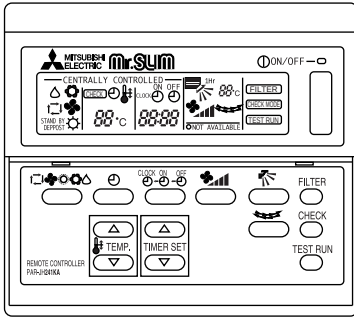
*1 RANGE A : Indoor coil temperature is more than 5 degrees above room temperature.

RANGE B : Indoor coil temperature is within 5 degrees either way of room temperature.

RANGE C : Indoor coil temperature is more than 5 below room temperature.



2-4 AUTO operation (Automatic COOL/HEAT change over operation)



<How to operate>

- ① Press POWER ON/OFF button.
- ② Press the button to display "i".
- ③ Press the button to set the desired temperature.

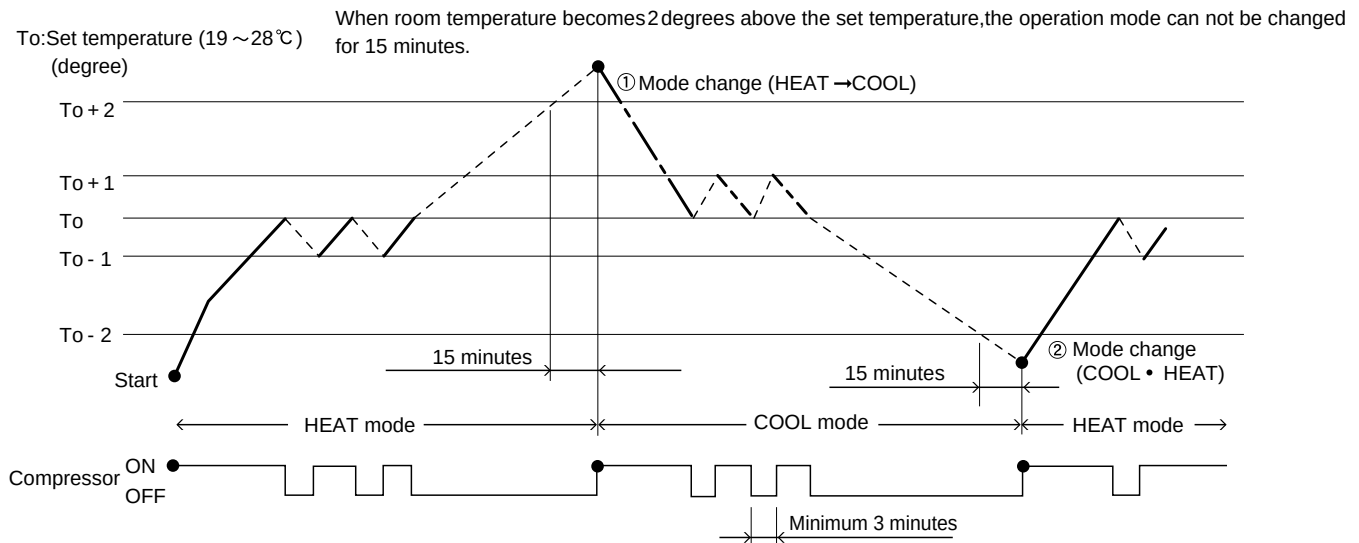
NOTE: The set temperature changes 1°C when the or button is press one time Cooling 19 to 28°C.
 ● "AUTOMATIC" works to change by itself the operation mode either to cooling or heating according to the room temperature.

(1) Initial mode

- ① When AUTO operation starts after unit OFF.
 - If the room temperature is higher than the set temperature, operation starts in COOL mode.
 - If the room temperature is equal to or lower than the set temperature, operation starts HEAT mode.
- ② When AUTO operation starts after COOL or HEAT operation, the previous mode continues.

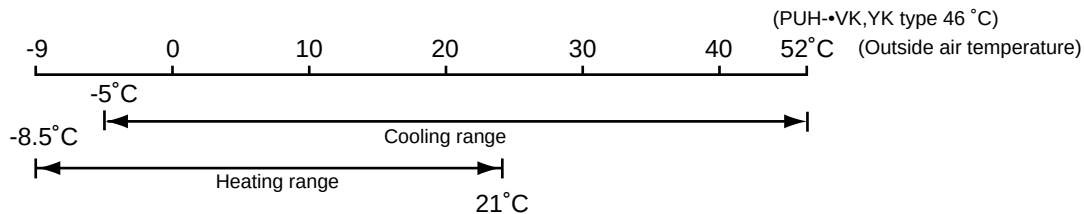
(2) Mode change

- ① HEAT mode changes to cool mode when 15 minutes have passed since the room temperature became 2 degrees above the set temperature.
- ② COOL mode changes to HEAT mode when 15 minutes have passed since the room temperature became 2 degrees

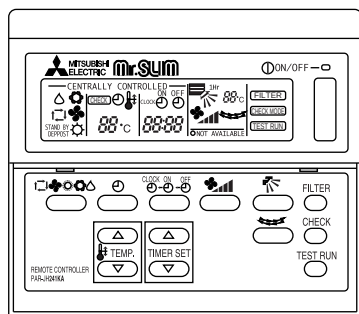


(3) Temperature range

AUTO operation is available under the outside air temperatures as follows.



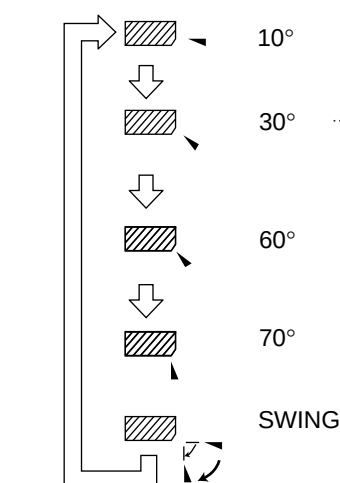
2-5 Auto vane control



<How to operate>

To change the air flow direction, press  button.

<Remote controller display>



Changes by pressing the  button.

Available in COOL operation with fan speed on HIGH or in HEAT operation.
Unavailable in DRY operation.
If fan speed changes from LOW to HIGH during 30° downward discharge in COOL mode, the direction automatically changes to 10°.

(1) COOL/DRY operation

At the start-up of COOL or DRY operation, the discharge direction is automatically set to 10°. After, it can be changed to another direction with  button on the remote controller.

<Auto return>

When 60° or 70° discharge is set with fan speed on LOW, "1Hr" appears below the room temperature display. One hour later the direction changes to 10° degrees, automatically and "1Hr" disappears.

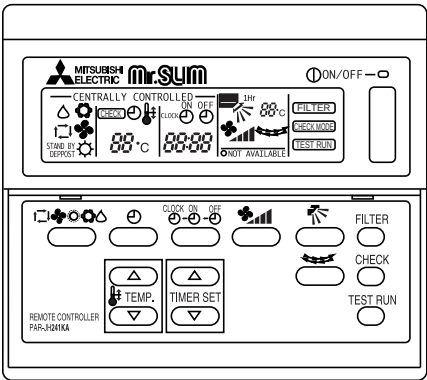
(2) HEAT operation

At the start-up of HEAT operation, discharge direction depends on the setting of the last operation.

After, it can be changed to another direction with  button. The discharge direction shifts to 10° regardless of the remote controller settings under any of the following conditions.

- Thermostat OFF
- Defrosting
- Indoor fan speed EXTRA-LOW in hot adjustment

2-6 TIMER operation



<Timer function>

AUTO STOP The air conditioner stops after the set time lapses.
AUTO START The air conditioner starts after the set time lapses.
AUTO OFF Timer is not active.

<How to operate>

1. Press POWER ON/OFF button.
2. Press button to select AUTO STOP or AUTO START.
3. Press button to set desired time.
Time setting is in 1 hour units for up to 24 hours.
Each time HOURS button is pressed, set time increases by 1 hour.
When HOURS button is pressed and held, the set time increases by 1 hour every 0.5 seconds.
4. To cancel the timer operation, press POWER ON/OFF button.

<Timer setting example>



This setting will stop the air conditioner in 8 hours.
With the lapse of time, time display changes in 1 hour units, showing remaining time.

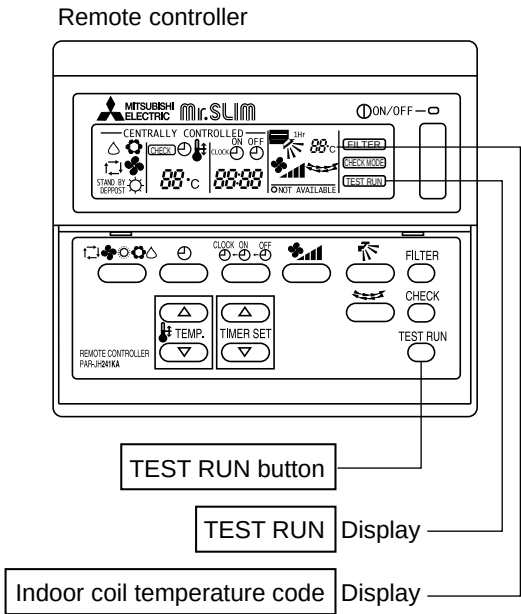
2-7 Test run

<Before test run>

- After installing, wiring, and piping the indoor and outdoor units, check for refrigerant leakage, looseness in power supply or control wiring, and mistaken polarity.
- Use a 500-volt megger to check the resistance between the power supply terminal block and ground to make sure that it is at least 1.0MΩ.

Attention:

Do not use the air conditioner if resistance is less than 1.0MΩ.



1	Turn on main switch. 12 hours before proceeding to step 2 to allow for crankcase heater operation.
2	Push the TEST RUN button twice and indication of TEST RUN will be shown on the liquid crystal display.
3	Press the button to display , COOL/DRY (or HEAT) to confirm that cool (or warm) air is blown out. (AT heating operation, there may be a short delay before warm air begins to be out.)
4	Push button LOW/HIGH to check that the fan speed changes properly.
5	Check the operation of outdoor unit fans. This unit controls the rotation speed and performance capacity of fans. In some cases, it may rotate at low speed as the condition of outside air requires and the speed will be kept unless the performance has become deficient. Therefore, when the condition of outside air demands, there may be such cases as the fan stops or rotates reversely. Please note that these symptoms are not malfunction.
6	After the check is finished leave the test run mode, push the power ON/OFF button. It can also be stopped by pushing the timer MODE button.

The above figure shows the state of TEST RUN at cooling operation.

- When a TEST RUN is started, the timer shall be set to hours. The unit will automatically turn off after 2 hours.

(1) Indoor coil temperature code

During the test run, the indoor coil temperature code from 1 to 15 is displayed on the remote controller instead of room temperature. The code should fall with the lapse of time in normal COOL operation, and should rise in normal HEAT operation.

Code	1	2	3	4	5	6	7	8
Indoor coil temperature	-40~1°C	~10°C	~15°C	~20°C	~25°C	~30°C	~35°C	~40°C
Code	9	10	11	12	13	14	15	
Indoor coil temperature	~45°C	~50°C	~55°C	~60°C	~70°C	~90°C	Thermistor abnormality	

(2) Trouble during test run

- If the unit malfunctions during the test run, refer to section 10 in this manual entitled "TROUBLESHOOTING."
- When the optional program timer is connected to the conditioner, refer to its operating instructions.

2-8 Emergency operation

When the remote controller or microprocessor malfunctions but all other parts are normal, emergency operation is started by setting the dip switch SW3 on the indoor controller board.

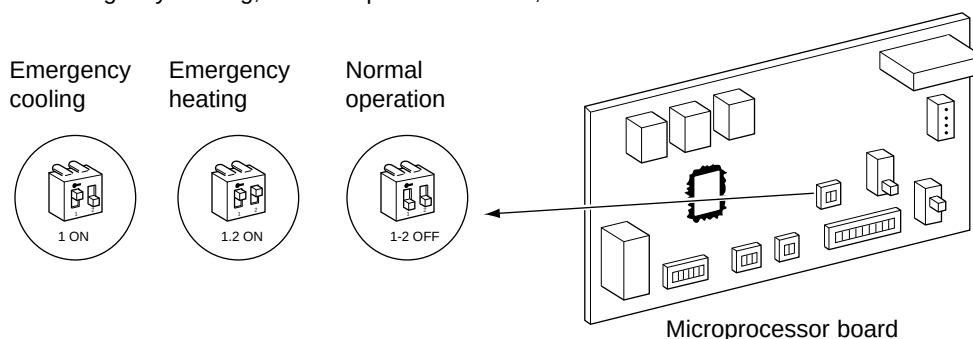
<Before emergency operation>

1. Make sure the compressor and the indoor fan are operating normally.
2. Locate the defect with the self-diagnostic function. When the self-diagnostic function indicates "protective function is working", release the protective function before starting the emergency operation.

CAUTION: When the self-diagnostic function indicates a check code of "P5" (drain pump malfunction), DO NOT start the emergency operation because the drain may overflow.

<How to operate>

1. For emergency cooling, set the dip switch SW3-1 to ON and SW3-2 to OFF.
For emergency heating, set the dip switch SW3-1,2 to ON.



2. Turn ON the outdoor unit breaker and then ON the indoor unit breaker.
Emergency operation will now start.
3. During emergency operation, the indoor fan operates on high speed, but the swing louvers and the auto vanes do not operate.
4. To stop emergency operation, turn OFF the indoor unit breaker.

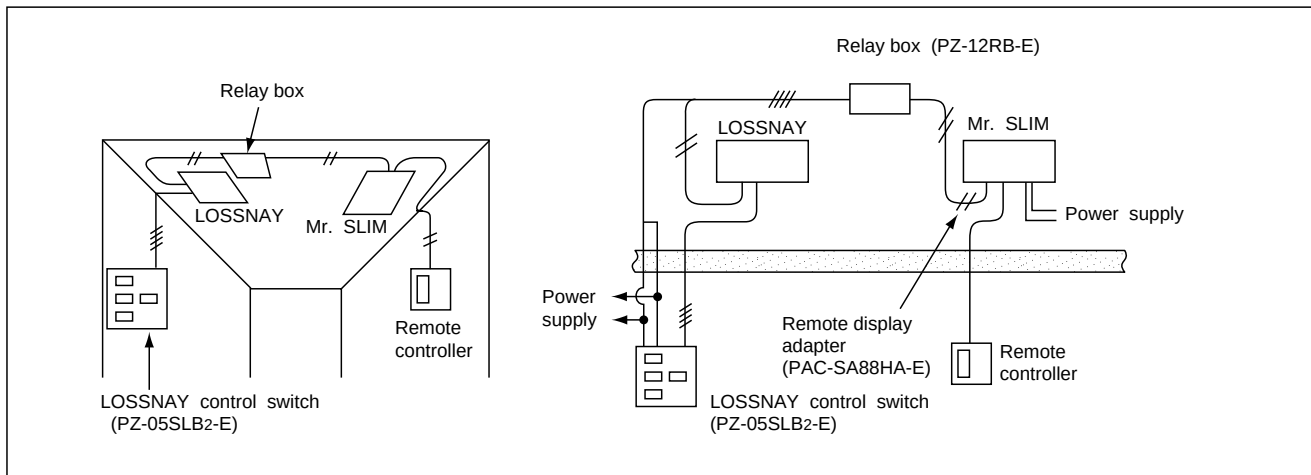
NOTE: The remote controller POWER ON/OFF button can not start/stop emergency operations.

CAUTION: Do not use emergency cooling for more than 10 hours, as the indoor coil may freeze.

2-9 Interlock with ventilation system (LOSSNAY)

Mr. SLIM/LOSSNAY interlock operation is available by using the optional parts listed below.

(1) System organization



- (2) LOSSNAY models connectable to Mr. SLIM are:
- | | |
|------------|-------------|
| LGH-15RS-E | LGH-50RS-E |
| LGH-25RS-E | LGH-80RS-E |
| LGH-35RS-E | LGH-100RS-E |

(3) Required parts are:

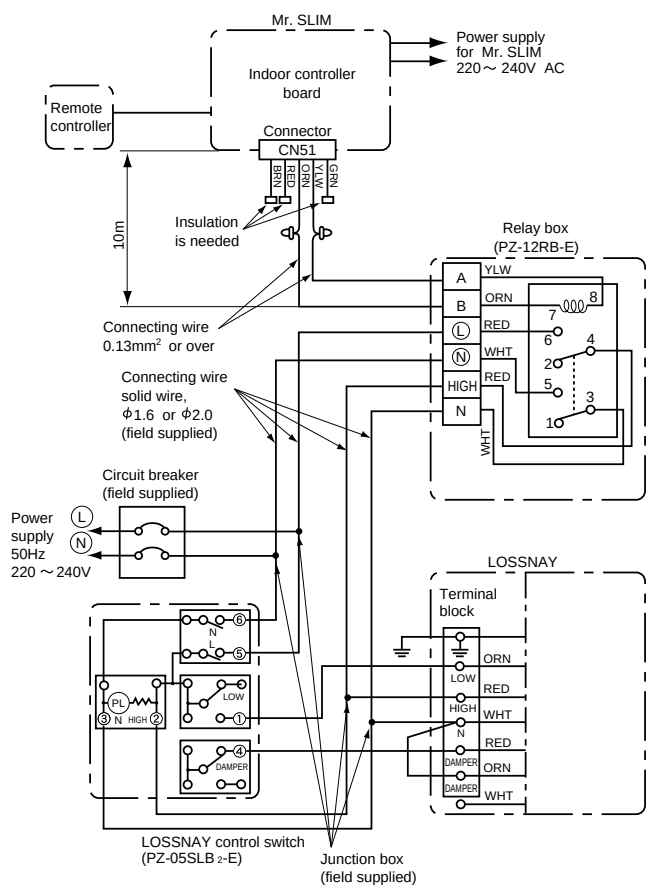
- Relay box (PZ-12RB-E)···Contact capacity 10A
- Remote display adapter (PAC-SA88HA-E)···An optional part for Mr. SLIM
- LOSSNAY control switch (PZ-05SLB 2-E)···For LOSSNAY individual operation

(4) Operation

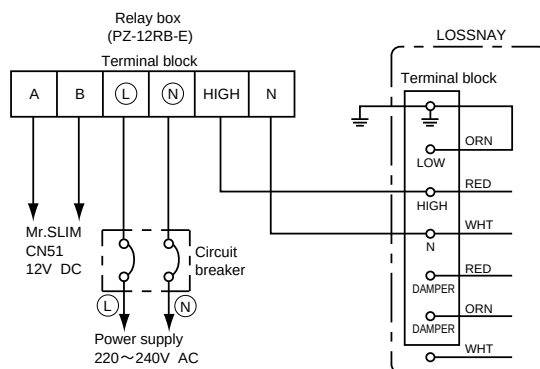
- ① LOSSNAY turns ON/OFF according to Mr. SLIM ON/OFF
- ② While Mr. SLIM is OFF, LOSSNAY individual operation is available by using the LOSSNAY control switch. When Mr. SLIM turns OFF with the LOSSNAY control switch at ON, LOSSNAY will continue to operate.

(5) Wiring.

① When the LOSSNAY control switch is used



② When the LOSSNAY control switch is not used:



NOTE: For further information, refer to the LOSSNAY technical & service manual.

2-10 Dip switch and jumper connector functions

Each figure shows the initial factory setting.

1 On remote controller board

(1) SW17(Address selector)

	1	2	3	4	5	6	7	8
ON	☐	☐	☐	☐	☐	☐	☐	☐
OFF	☒	☒	☒	☒	☒	☒	☒	☒

SW17-1 — 6) For address setting

SW17-7) When two remote controllers are used, this switch sets the controller function.

OFF: The remote controller is set as a main controller.

ON : The remote controller is set as a sub controller.

SW17-8) Switch for system back-up

OFF: Without back-up

ON : With back-up

(2) SW18 (Function selector)

	1	2	3	4
ON	☐	☒	☒	☒
OFF	☒	☒	☒	☒

SW18-1) Switch for timer

OFF: single day

ON : timer every day

SW18-2) Switch for filter sign

OFF: filter sign absent

ON : filter sign present

SW18-3) Switch for filter sign time setting

OFF: 100 Hr

ON : 2500 Hr

SW18-4) Not yet used.

2 On indoor controller board

For PKH-2FKA3 only

(1) SW1 (Mode selector)

	1	2	3	4	5	6	7	8	9	10
ON	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
OFF	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒

SW1-1) Switch that changes between FAN mode and AUTO mode

OFF: Fan mode for models without heat pump

ON : AUTO mode for models with heat pump

SW1-2) Not for use

SW1-3) Switch for auto vanes

OFF: Unit without auto vanes

ON : Unit with auto vanes

SW1-4) Switch for drain pump

OFF: The drain pump works in only COOL operation.

ON : The drain pump works in both COOL and HEAT operation

SW1-5) Switch to change the temperature to start coil frost prevention

OFF: -3°C(For previous special models)

ON : 1°C(For all current models)

SW1-6) Switch for set temperature adjustment in HEAT mode

During HEAT operation, warm air collects near the ceiling. When the indoor unit is installed near the ceiling, the temperature read by room temperature thermistor differs from the actual living-space temperature by about 4 degrees. Therefore, the room temperature read by room temperature thermistor must be lowered by 4 degrees.

OFF: 4-degree adjustment

ON : No adjustment

SW1-7) Switch for fan speed during thermostat OFF in HEAT operation

OFF: EXTRA LOW

ON : LOW

SW1-8) Switch for fan speed during thermostat OFF in HEAT operation.

OFF: EXTRA LOW or LOW (set with SW1-6)

ON : LOW or HIGH (set with remote controller)

SW1-9) Switch for detecting abnormalities in the outdoor unit abnormality detection

OFF: When an abnormality occurs, it is detected.

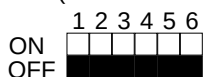
ON : Even if an abnormality occurs, it can not be detected.

SW1-10) Switch for auto restart function

OFF: This function does not work

ON : This function works.

(2) SW2 (Address selector)



Used in setting the unit-address for group control.
For further information, refer to page 55.

(3) SW3 (Emergency operation switch)

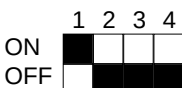
Normal operation

For emergency cooling

For emergency heating



(4) SW5 (Model selector)



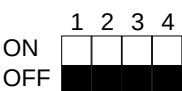
SW5-1) Power supply (ON :230V/240V
OFF:220V)

SW5-2) OFF:For models with heat pump
ON :For models without heat pump

SW5-3) Not for use

SW5-4) This switch is unavailable Keep this switch at OFF.

(5) SW6 (Model selector)



	Single control	Twin control	Triple control
SW6-1	OFF	ON(Twin NO.1)	ON(Triple NO.1)
SW6-2	OFF	ON(Twin NO.2)	ON(Triple NO.2)
SW6-3	OFF	OFF	ON(Triple NO.3)
SW6-4	OFF	OFF	ON

(6) SW7 (Model selector)

Switch to set the output of phase-controlled indoor fan motor.

Address setting is available at any time/

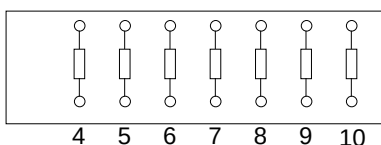
The initial factory setting by is based on each capacity.

Service Ref.	PKH-2FKA ₃
SW7	

3. On indoor controller board

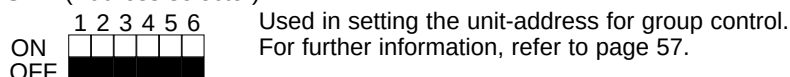
For PKH-2.5FKA₂, PKH-2.5FKA₃, PKH-3FKA₂, PKH-3FKA₃, PKH-4FKSA₂, PKH-4FKSA₃

(1) J1 (Mode selector)

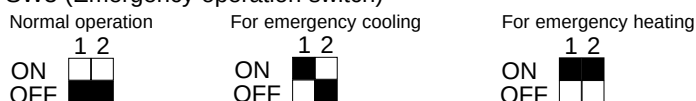


- J1-4) Switch for drain pump
 Provided : The drain pump works in only COOL operation
 Not provided: The drain pump works in both COOL and HEAT operation
- J1-5) Switch to change the temperature to start coil frost prevention
 Provided : 1°C (For all current models)
 Not provided: -3°C (For previous special models)
- J1-6) Switch for set temperature adjustment in HEAT mode
 During HEAT operation, warm air collects near the ceiling. When the indoor unit is installed near the ceiling, the temperature read by room temperature thermistor differs from the actual living-space temperature by about 4 degrees. Therefore, the room temperature read by room temperature thermistor must be lowered by 4 degrees.
 Provided : 4-degree adjustment
 Not provided: No adjustment
- J1-7) Switch for fan speed during thermostat OFF in HEAT operation
 Provided : EXTRA LOW
 Not provided: LOW
- J1-8) Switch for fan speed during thermostat OFF in HEAT operation.
 Provided : EXTRA LOW or LOW (set with J1-7)
 Not provided: Low or High (set with remote controller)
- J1-9) Switch for detecting abnormalities in the outdoor unit abnormality detection.
 Provided : When an abnormality occurs, it is detected.
 Not provided: Even if an abnormality occurs, it can not be detected.
- J1-10) Switch for auto restart function
 Provided : This function does not work
 Not provided: This function works.

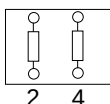
(2) SW2 (Address selector)



(3) SW3 (Emergency operation switch)

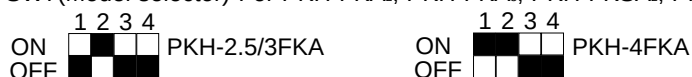


(4) J5 (Model selector)



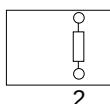
- J5-2) Original :For models with heat pump.
 Cut :For models without heat pump.
- J5-4) Do not cut this jumper wire for PKH-2.5FKA₂, PKH-2.5FKA₃, PKH-3FKA₂, PKH-3FKA₃, PKH-4FKSA₂, PKH-4FKSA₃.
 If cut, it causes unit malfunction.

(5) SW7(Model selector)•For PKH-FKA₂, PKH-FKA₃, PKH-FKSA₂, PKH-FKSA₃.



- SW7-1) OFF:PKH-2.5/3
 ON :PKH-4
- SW7-2) POWER SUPPLY (OFF: 220V)
 ON : 240V)
- SW7-3) Not for use
 SW7-4)

- (6) J9 Do not cut this jumper wire
 If cut, it causes unit malfunction.



2-11 INDOOR FAN CONTROL

Indoor fan relay output.

(a) During fan ON

The indoor fan relay turns ON. One second later, the phase control will start.

(b) During fan OFF

The phase control turns OFF. One second later, the indoor fan relay will turn OFF.

3. OUTDOOR UNIT CONTROL

3-1 Outdoor fan control

The rotational frequency of outdoor fan is phase-controlled according to the outdoor coil temperature. This control allows the cooling operation even with the low outside-air temperature and the heating operation even with the high outside-air temperature.

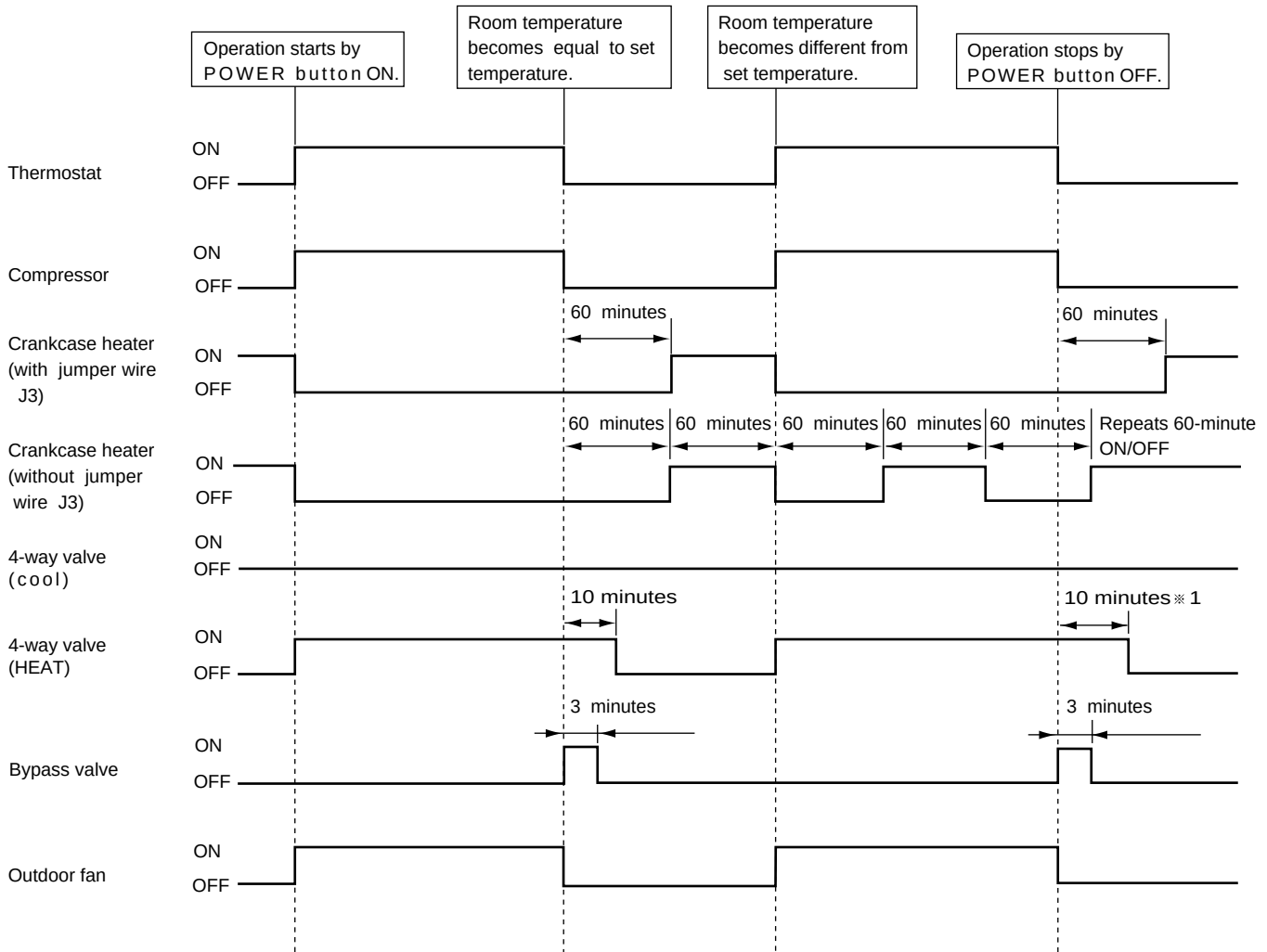
3-2 Outdoor unit control

The outdoor unit turns ON/OFF the cooling/heating operation according to orders given from the indoor unit.

3-3 Protective functions

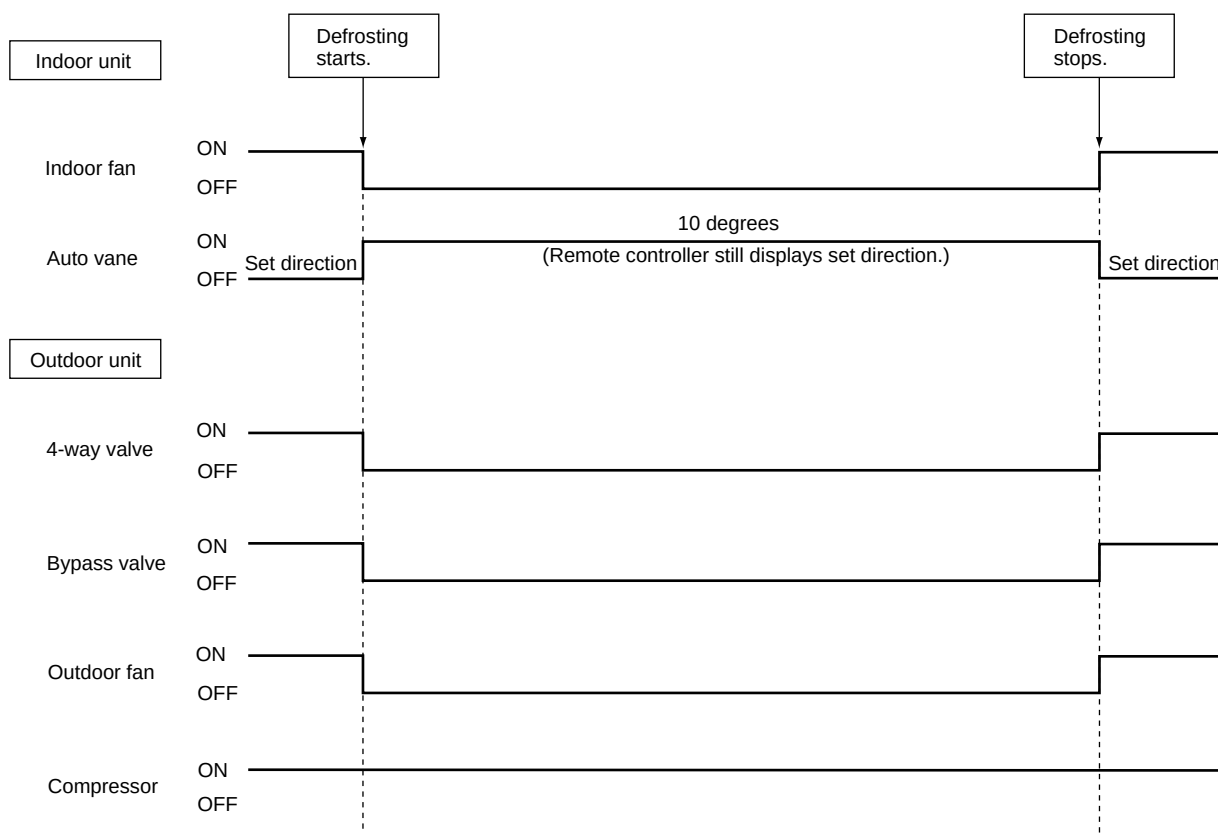
- ① If an reversed-phase, an open phase, or an indoor controller abnormality is detected, the outdoor unit will stop operation and the check mode will start. (For the check mode details, see page 56.)
- ② If a protective function works, the compressor will stop running. Three minutes later, the compressor will restart. If the protective function works again, the compressor will stop running and the check mode will start.
- ③ The protective function is memorized.
- ④ The memory is cleared when the POWER ON/OFF button on the remote controller is turned OFF. However, the check mode display continues until the outdoor unit receives the "operation ON" command from the indoor unit.

3-4 COOL/HEAT operation time chart



※1 If compressor restarts within 10 minutes, 4-way valve remains ON.

3-5 Defrosting in HEAT mode <Defrosting time chart>



(1) Start conditions

- A. When all of the following conditions are satisfied, defrosting will start. However, when the bypass valve turns OFF, defrosting starts 10 minutes later.
- More than seven minutes have passed since the compressor start-up.
 - The outdoor coil thermistor reads -5°C or below.
 - The outdoor fan motor output step is 100%
 - Total time of compressor operation exceeds 30 minutes, and the outdoor coil temperature has fallen by 8 degrees or more in comparison with that of 10 minutes after the compressor start-up.

NOTE: The outdoor coil temperature of 10 minutes after the compressor start-up is memorized until the defrosting operation has ended.

- B. When all of the following conditions are satisfied, defrosting will start.

- ~ (c) The same as above (a) ~ (c) in item A
- Total time of compressor operation exceeds "defrost interval".

Further information on the defrost interval is described in (3).

- C. After the total time of compressor operation exceeds the defrost interval, the thermostat repeats ON/OFF 3 times. Two minutes after the fourth "ON" of the thermostat, if the outdoor coil thermistor reads -5°C or below and the fan output is 100%, defrosting will start.

NOTE: The count of the thermostat ON/OFF is cleared by the compressor-OFF command or defrosting start-up.

(2) During defrosting

- Even if the thermostat turns OFF, defrosting continues.
- The 4-way valve, bypass valve, outdoor fan, and indoor fan are OFF.

(3) Defrost interval

The defrost interval time is determined as follows.

- Initial defrost interval is 50 minutes.
- The defrost interval after defrosting depends on the preceding defrosting time as shown below.

Defrosting operation time	Next defrost interval
3 minutes or below	120 minutes
3 to 7 minutes	80 minutes
7 to 10 minutes	60 minutes
10 to 15 minutes	40 minutes
15 minutes (Maximum)	30 minutes

NOTE1: If the unit stops during defrosting, the next defrost interval will be 50 minutes.

NOTE2: If a protection function works for the first time during defrosting, the compressor will stop.

After a 3-minute time delay, defrosting will restart. In this case, a 3-minute time delay is included with the defrosting time.

If the protection function works for the second time, the unit stops operation and displays the check code.

The next defrost interval will be 30 minutes.

NOTE3: When the defrosting has ended, the total time of the compressor operation is cleared.

(4) Termination conditions

Defrosting finishes when any of the following conditions are satisfied.

- ① Defrosting has continued for 15 minutes.
- ② Outdoor coil thermistor reads 22°C or above for the first 75 seconds after defrosting start-up.
- ③ Outdoor coil thermistor reads 8°C or above after the 75-second defrosting.
- ④ Power ON/OFF button is turned OFF during defrosting.

3-6 Actuators

(1) Bypass valve control

<Cooling mode>

- ① When the unit stops due to the coil frost prevention, the bypass valve turns ON. When one hour has passed since the compressor stopped, the bypass valve returns to OFF.
- ② When the compressor operates with the bypass valve at ON for more than 30 minutes, the bypass valve turns OFF.
- ③ When the compressor stops with the bypass valve at OFF, the bypass valve turns ON and remains ON for three minutes.

<Heating mode>

- ① When the unit starts for the first time after the circuit breaker has been turned ON, or when it starts after the compressor OFF of 30 minutes or more, if the outdoor coil thermistor reads 12°C or more, the bypass valve turns ON.
- ② When the high pressure switch (63H1) works, the bypass valve turns ON.
- ③ When the bypass has been ON for 30 minutes:
 - If the high pressure switch has already returned, the bypass valve turns to OFF.
 - If not, the fan output step keeps 70 for three minutes. Meanwhile, if the high pressure switch returns, the bypass valve turns OFF. Otherwise the normal fan control starts.
- ④ When the operation mode changes or stops, the bypass valve turns ON and remains ON for three minutes.

<Defrosting operation>

- ① The bypass valve is OFF.

(2) Crankcase heater control

- ① With jumper wire J3

The crankcase heater is ON from when the power is turned ON until the compressor starts, and then turns ON one hour after the compressor stops.

- ② Without jumper wire J3

The crankcase heater is ON from when the power is turned ON until the compressor starts, and repeats 1-hour ON and 1-hour OFF.

3-7 Service functions

(1) Compulsory defrosting

- ① When all of the following conditions are satisfied, pressing SW2 starts the compulsory defrosting.
 - During HEAT mode
 - The compressor is ON.
 - The outdoor coil temperature is being displayed by LED. (Outdoor controller board dip switch SW3-1 : OFF, SW3-2 : ON)
 - The outdoor coil thermistor reads 8°C or below.
- ② The operation state and the termination conditions of the compulsory defrosting are the same as those of the normal defrosting. As an exception, the defrost interval after the defrosting completion is 50 minutes.

(2) Fixed fan-output

While the compressor is operating (except during defrosting) and the fan output step is indicated by LED, pressing SW2 fixes the fan output. The fixed fan-output can be released when any of the following conditions are satisfied.

- ① SW2 is pressed again.
- ② SW3 setting is changed.
- ③ The compressor stops.
- ④ Defrosting operation starts.

(3) Function of switches on the outdoor controller board

SW1: Clears the check code memory (push-button switch)

SW2: Switches the output state indication and the check code display (push-button switch)

SW3-1,2: Switches the output state indication items (dip switch)

For further information, refer to page 57.

(4) 100% fan output

Fan output is fixed to 100% by shorting the connector CN22. However, the fan stops during compressor OFF or defrosting. Open-circuit of CN22 restarts the normal fan control.

(5) Time shortening

Short circuit of the connector CN21 shortens the time as follows

- ① Fan control period: 30 seconds → 3 seconds
- ② Three-minutes time delay function : 3 minutes → 3 seconds
- ③ Max. time of defrosting : 15 minutes → 15 seconds
- ④ Defrost interval : 30 ~ 120 minutes → 3 ~ 12 seconds
- ⑤ Compressor ON/OFF time for bypass valve ON/OFF : 30 minutes → 3 seconds
- ⑥ Compressor ON time to start other functions : x minutes → x seconds
- ⑦ Crankcase heater operation : 1 hour → 6 seconds

1. TROUBLE IN TEST RUN

Symptom	Cause	Check points																				
The display “CENTRALLY CONTROLLED” on remote controller does not disappear.	1) Wrong address setting of remote controller/indoor controller board. 2) Timer adapter is connected to the remote controller. 3) Signal transmission error between indoor unit and remote controller.	1) Check the address setting of remote controller and indoor controller. 2) Make sure the timer adapter is used correctly. 3) ① Turn another remote controller’s DIP SW17-7 ON to make it sub controller. ② Connect the sub controller to the unit, and turn circuit breaker ON. ● If the display “centrally controlled” disappears, replace the original remote controller. ● If the display remains the same, replace the indoor controller board.																				
When remote controller POWER button is turned ON, the check code “EO”appears.	1) Signal transmission error between indoor unit and remote controller	1) ① Connect a sub remote controller. ② Turn circuit breaker ON. If the display “centrally controlled” remains, replace the indoor controller board. ③ If the display disappears, turn the remote controller POWER button ON and check as follows. <table><tr><td></td><td>Remote controller</td><td>Sub remote controller</td><td>Malfunction</td></tr><tr><td>1</td><td>Operating Display</td><td>EO Display</td><td>Malfunction of indoor Unit</td></tr><tr><td>2</td><td>Operating Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr><tr><td>3</td><td>No Display</td><td>EO Display</td><td>Malfunction of indoor Unit and Remote Controller</td></tr><tr><td>4</td><td>No Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr></table>		Remote controller	Sub remote controller	Malfunction	1	Operating Display	EO Display	Malfunction of indoor Unit	2	Operating Display	Operating Display	Malfunction of Remote controller	3	No Display	EO Display	Malfunction of indoor Unit and Remote Controller	4	No Display	Operating Display	Malfunction of Remote controller
	Remote controller	Sub remote controller	Malfunction																			
1	Operating Display	EO Display	Malfunction of indoor Unit																			
2	Operating Display	Operating Display	Malfunction of Remote controller																			
3	No Display	EO Display	Malfunction of indoor Unit and Remote Controller																			
4	No Display	Operating Display	Malfunction of Remote controller																			
When remote controller POWER button is turned ON, operating display appears, but disappears soon.	1) Short circuit of indoor/outdoor connecting wire 2) Short circuit of transmission wire. 3) Short circuit of drain sensor heater circuit. 4) Wrong operation of remote controller due to noise wave emitted by other appliances.	1), 2) Check the wire 3) Measure the resistance of the drain sensor connector CN50 ① ~ ③. Normal resistance should be 82Ω. 4) Turn the circuit breaker OFF, and then turn ON. If the remote controller remains abnormal, despite the above measures, replace the indoor controller board.																				
Despite turning POWER button ON, the remote controller display does not appear.	1) Damaged remote controller. 2) Short circuit of transmission wire. 3) Bad contact of indoor CN40. 4) CN40 is attached to a sub unit. 5) Damaged transformer. 6) Bad contact of CN4T. 7) Blown fuse. 8) Circuit breaker OFF.	1) Measure the voltage between terminals of remote controller. If no voltage, remove the terminals and measure the voltage between wires. If the voltage is between 6VDC and 12V, replace the remote controller. 2) ~ 8) Check each point. If it is not defective, replace the indoor controller board.																				

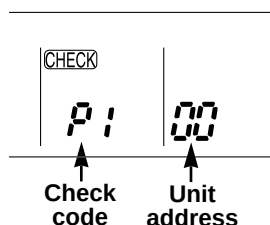
2. SELF DIAGNOSTIC FUNCTION WITH REMOTE CONTROLLER

2-1 When malfunction occurs during operation

When a malfunction occurs, the indoor and outdoor units stop and the malfunction is displayed on the LCD of the remote controller.

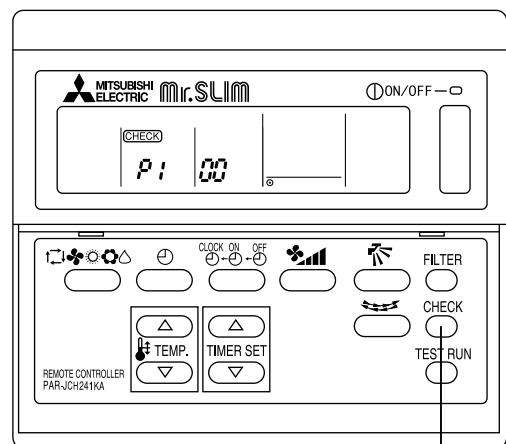
- (1) ON the set temperature display part, "CHECK" appears, and the unit address and the check code are displayed alternately at one-second intervals. (Check mode)

Example



- (2) When one remote controller controls several units in the group control, the LCD shows the unit address and check code of the first malfunctioning unit.
- (3) To cancel the check mode, press the ON/OFF button. In remote ON/OFF control, press the remote ON/OFF switch. In centralized control, turn OFF the ON/OFF button of centralized controller.

CHECK mode



Check button

NOTE: The latest check code is memorized, even if the check mode is cancelled by the way mentioned above. It takes 60 seconds maximum to display the memorized check code.

2-2 How to use the self diagnostic function for service

A. For normal control with one unit and one remote controller

- (1) Pressing the CHECK button on the remote controller twice starts the self diagnostic function.
- (2) During the self diagnostic function, "CHECK MODE" appears at two positions on the remote controller display. Then, at least 10 seconds later, the unit address and the check code is alternately displayed at one-second intervals.
- (3) Check and repair the unit according to the check code. (Refer to the next page.)

B. For group control using one remote controller

- (1) Pressing the CHECK button on the remote controller twice starts the self diagnostic function.
- (2) Press the TEMP. button or TEMP. button on the remote controller to advance or go back to the unit address. Each time TEMP. button is pressed, the unit address advances by one. Each time TEMP. button is pressed, the unit address goes back by one. The check code and the unit address, appear alternately.
- (3) The check code "U8" means no malfunction has occurred since installation. The check code "EO" means the following conditions:
 - The unit address displayed on the remote controller does not apply to any unit.
 - power is not supplied to the unit.
 - Signal transmitting/receiving circuit is abnormal.
- (4) Check and repair the unit according to the check code. (Refer to the next page.)



Check code	Diagnosis of malfunction	Cause	Check points
EO	Signal transmitting/receiving error (Indoor controller does not respond to remote controller signal.)	During individual unit control 1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal.	1) Check the transmission wire. 2) Check with another remote controller. If "EO" is still indicated, replace the indoor controller board. If other check code appears, replace the original remote controller.
P1	Abnormality of room temperature thermistor (RT1)	1) Bad contact of thermistor 2) Damaged thermistor	1) Check the thermistor. 2) Measure the resistance of the thermistor. Normal resistance should be as follows. 0 C ...15kΩ 30 C ...4.3kΩ 10 C ...9.6kΩ 40 C ...3.0kΩ 20 C ...6.3kΩ If the resistance is normal, replace the indoor controller board.
P2	Abnormality of indoor coil thermistor (RT2)		
P3	Signal transmission error (Remote controller does not respond to indoor controller signal.)	1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal. 3) Wrong operation due to noise wave emitted by other appliances	1) Check the transmission wire. 2) Check with another remote controller. If "P3" is still indicated, replace the indoor board. If other check code appears, replace the original remote controller. 3) Short-circuit between ① and ② of CN40 and attach CN40 to the following units. ● Second unit in twin control ● Second and third units in triple control ● Sub units in group control
P4	Abnormality of drain sensor	1) Bad contact of transmission wire 2) Damaged thermistor	1) Check the connector. 2) Measure the resistance of the thermistor ④ ~ ⑤. As for the normal resistance, refer to the case of P1. If the resistance is normal, replace the indoor controller board.
P5	Malfunction of drain pump	1) Malfunction of drain pump 2) Damaged drain sensor	1) Check the drain pump. 2) ● Check the drain sensor. ● Check the drain sensor heater. Normal resistance should be 82Ω. If the resistance is normal, replace the indoor controller board.
P6	Coil frost protection is working.	1) Short cycle of air cycle 2) Dirty air filter 3) Damaged fan 4) Abnormal refrigerant	1) Clear obstructions from the air cycle. 2) Clean the air filter 3) Check the fan. 4) Check the refrigerant temperature.
P7	System error	1) Wrong address-setting 2) Signal transmitting/receiving circuit of remote controller is abnormal. 3) Wrong SW6-setting	1) Check the address-setting. 2) Check with another remote controller. If check code other than "P7" appears, replace the original remote controller. 3) Check SW6 setting.
P8	Abnormality in outdoor unit	1) Wrong wiring of indoor/outdoor connecting wire 2) Reversed phase 3) Protection device is working 4) Damaged outdoor coil thermistor	1) Check the indoor/outdoor connecting wire. 2) Change the connection of electric wiring. 3) Check the protection device. 4) Measure the resistance of the outdoor coil thermistor. If the resistance is normal, replace the outdoor controller board.

3. SERVICE DATA INDICATION BY SWITCHES ON OUTDOOR CONTROLLER BOARD

Setting dip switches SW2 and SW3 on the outdoor controller board enables LED to show the output state and check code. Output state is shown by LED lighting, and check code by blinking.

SW1 : Turning SW1 ON clears the check code. If SW1 is turned ON while the check code is blinking, the indication changes to output state indication.

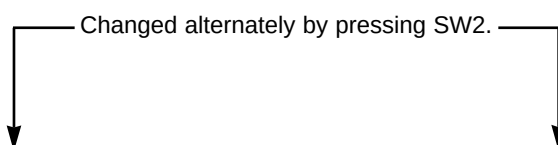
NOTE : SW1 is usually available independent of SW3 setting. As an exception, when the check code shows a reversed phase or an open phase during the power-on-reset state, SW1 is not available.

SW2 : SW2 is turned ON by pressing, and OFF by releasing.

When SW3-1 and SW3-2 are OFF, pressing SW2 changes indication between output state and check code alternately.

When SW2 is turned On with SW3-1 OFF and SW3-2 ON, the compulsory defrosting starts.

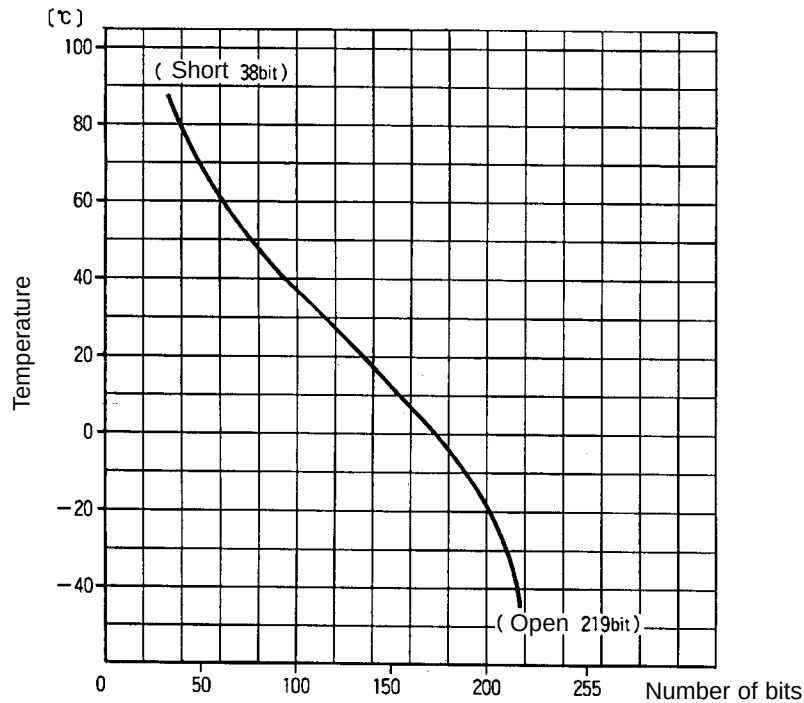
SW3 : Output state indication items depend on the combination of SW3-1 ON/OFF and SW3-2 ON/OFF.



	Check code	Output state	Outdoor coil temperature (bit)	Outdoor coil temperature (bit)	Total time of compressor operation(Hr)
SW3-1	OFF	OFF	OFF	ON	ON
SW3-2	OFF	OFF	ON	OFF	ON
LED	Blinking	Lidhting			
LD1	Reversed phase	Compressor ON command from indoor controller	1	1	256
LD2	Open phase	Heating operation command from indoor controller	2	2	512
LD3	Outdoor coil thermistor is abnormal.	During 63H1 function	4	4	1024
LD4	63H2 function	Compressor ON	8	8	2048
LD5	51C function	Outdoor fan ON	16	16	4096
LD6	26C function	4-way valve ON	32	32	8192
LD7	Overheat protection	Bypass valve ON	64	64	16384
LD8	Input circuit on controller board is abnormal	Crankcase heater ON	128	128	32768

3-1 Outdoor coil temperature

To obtain data on the outdoor coil temperature, add the number of bits of lighting LEDs, and see the graph below to find the temperature.

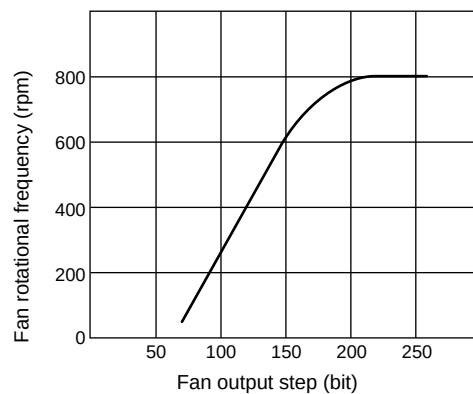
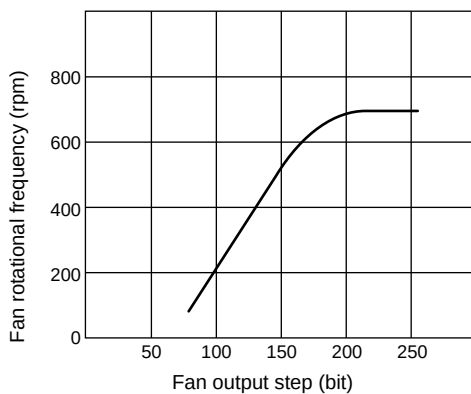


3-2 Fan output step

To obtain data on the fan output step, add the number of bits of lighting LEDs, and see the graph below to find the fan rotational frequency.

①PUH-2NKA, PUH-4TKSA
PUH-1.6/2KA, PUH-4KSA

②PUH-2.5NKA, PUH-3NKA
PUH2.5VKA, PUH-2.5/3KA



3-3 Total time of compressor operation

Compressor operation time is indicated in 256 hour units. To obtain the compressor operation time, add the hours of lighting LEDs. During the compressor operation time indication, SW2 is not available.

3-4 Check code indication

- When a protection function works for the first time during operation, the operation stops and restarts after the 3-minutes time delay mode. When the protection function works again, the operation stops. (Check mode) When both SW3-1 and SW3-2 are OFF, the check code is indicated.
- If the outdoor controller board receives the compressor ON command from the indoor controller board during check mode the indication changes to output state indication.
- By pressing SW2 during normal operation. operation will continue.
- The latest check code is indicated.

4. TROUBLESHOOTING ACCORDING TO CHECK CODE

Blinking LED	Diagnosis of malfunction	Cause	Check point
LD1	Reversed phase	Phases L ₁ , L ₂ , and L ₃ are connected improperly.	Check the power supply connection.
LD2	Open phase	● Phase L₂ is open. ● Contact of protector, such as thermal switch, opened when power was turned on.	● Check the power supply. ● Check each protector.
LD3	Outdoor coil thermistor is abnormal. (Open circuit or short circuit)	● Outdoor coil thermistor is broken. ● Thermistor was connected incorrectly.	● Measure the resistance of the thermistor. ● Check the thermistor. If normal, replace the outdoor controller board.
LD4	High pressure switch (63H2) function	● 62H2 was badly connected. ● 63H2 was working.	● Check 63H2 and the outdoor fan motor. ● Check if refrigerant supply is low. ● Check if air cycle is short-cycled.
LD5	Thermal relay (51C) function	● 51C was connected incorrectly. ● 51C was working.	● Check 51C, the compressor, and power supply.
LD6	Thermal switch (26C) function.	● 26C was connected incorrectly. ● 26C is working.	● Check 26C. ● Check if refrigerant supply is low. ● Check if the capillary tube is clogged.
LD7	Over heat protection	● The thermistor is broken. ● Coil temperature is over 67°C.	● Measure the resistance of the thermistor. ● Check the outdoor fan motor. ● Check if air cycle is short-cycled.
LD8	Input circuit of outdoor controller board is abnormal.	● Pulse input is abnormal.	● Replace the outdoor controller board.

5. WHEN OUTDOOR UNIT DOES NOT WORK

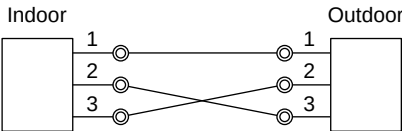
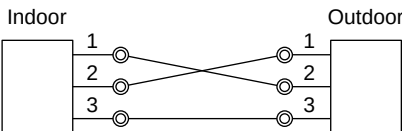
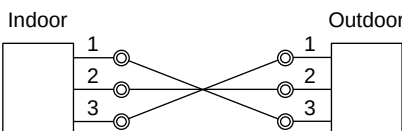
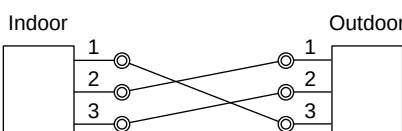
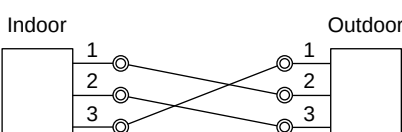
Cause	Check points
1) Indoor/outdoor connecting wires are poorly connected. (Refer to next page.) 2) Power supply cord is poorly connected. 3) Connector or transformer is broken. 4) Fuse (6.3A) in the outdoor controller board is blown.	1) Check the connecting wires. 2) Check the power supply cord. 3) Check connectors and transformers. 4) Check the fuse.

6. WRONG WIRING ON SITE

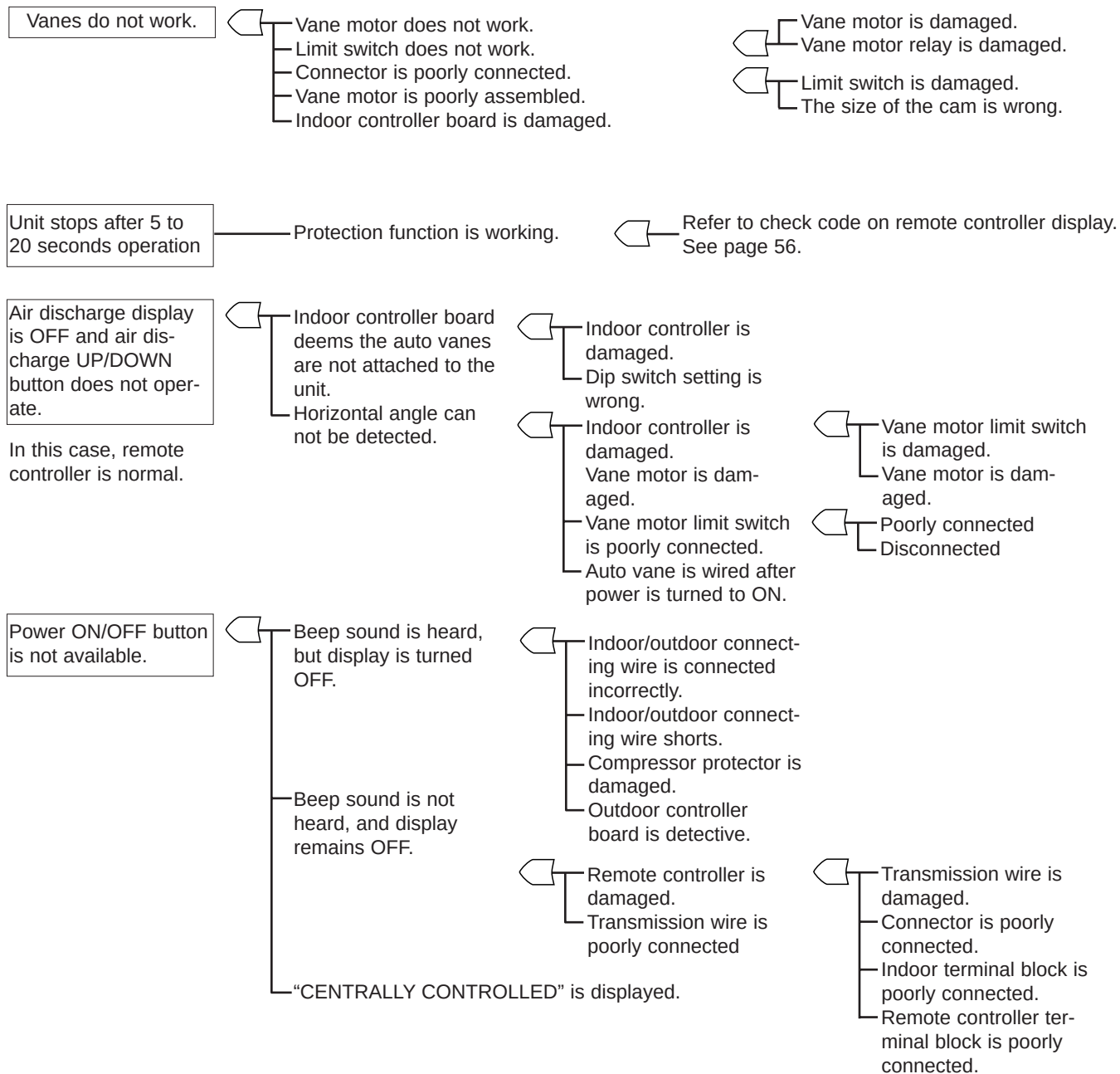
6-1 Between remote controller and indoor unit

If the wire is disconnected between the remote controller and the indoor unit, nothing is displayed on the remote controller when the POWER button is pressed. The beep sound will also not be heard.

6-2 Phenomena due to wrong wiring between indoor and outdoor units

Wrong wiring	Mode	Thermostat	Phenomenon
	COOL	OFF	Operation stops.
		ON	4-Way valve turns ON. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Cooling operation. Several minutes later, check code "P8" appears on remote controller display.
		ON	Normal operation.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops, 27 minutes later, check code "P8" appears on remote controller display.
	COOL	OFF	Outdoor unit stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops.
		ON	Operation stops. 27 minutes later, check "P8" appears on remote controller display.
Disconnection between 1 and 1 or 2 and 2.	COOL	OFF	Operation stops.
		ON	Operation stops. 9 minutes later, check code "P8" appears on remote controller display.
	HEAT	OFF	Operation stops. 4-way valve turns OFF.
		ON	27 minutes later, check code "P8" appears on remote controller display.
Disconnection between 3 and 3.	COOL	—	Normal operation.
	HEAT	OFF	Operation stops. 4-way valve turns ON.
		ON	Operation stops. 27 minutes later, check code "P8" appears on remote controller display.

7. OTHER TROUBLES AND CAUSES



8. MR. SLIM/LOSSNAY INTERLOCK OPERATION

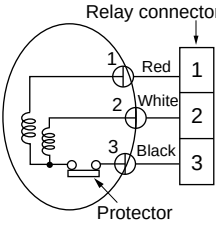
<Symptoms that are not malfunctions>

If any of the following symptoms occur, they are not malfunctions.

Symptom	Cause
LOSSNAY control switch does not work.	LOSSNAY control switch can not work during interlock operation. LOSSNAY control switch is effective only while Mr. SLIM is not operating.
LOSSNAY air speed can not be controlled in interlock operation.	LOSSNAY fan speed is fixed to HIGH during interlock operation. LOSSNAY fan speed LOW/HIGH can be switched only during LOSSNAY individual operation with the LOSSNAY control switch.

For LOSSNAY, troubleshooting refer to the LOSSNAY technical & service manual.

9. How to check the parts

Parts name	Check points																						
Room temperature thermistor (RT1) Pipe temperature thermistor (RT2)	Disconnect the connector then measure the resistance using a tester. (Surrounding temperature 10℃~30℃) <table><tr><td>Normal</td><td>Abnormal</td></tr><tr><td>4.3kΩ~9.6kΩ</td><td>Open or short</td></tr></table>	Normal	Abnormal	4.3kΩ~9.6kΩ	Open or short																		
Normal	Abnormal																						
4.3kΩ~9.6kΩ	Open or short																						
Fan motor (MF) 	Measure the resistance between the terminals using a tester. (Winding temperature 20℃) <table><tr><th rowspan="2">Motor terminal or Relay connector</th><th colspan="3">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>PKH-2FKA₃</th><th>PKH-2.5, 3FKA_{2/3}</th><th>PKH-4FKSA_{2/3}</th></tr><tr><td>Red-Black</td><td>154.3Ω</td><td>99.5Ω</td><td>62.6Ω</td><td rowspan="2">Open or short</td></tr><tr><td>White-Black</td><td>162.0Ω</td><td>103.9Ω</td><td>74.0Ω</td></tr><tr><td>Protector</td><td>OFF : 120±5℃ ON : OFF-15℃</td><td colspan="2">OFF:130±5℃ ON :80±20℃</td><td></td></tr></table>	Motor terminal or Relay connector	Normal			Abnormal	PKH-2FKA ₃	PKH-2.5, 3FKA _{2/3}	PKH-4FKSA _{2/3}	Red-Black	154.3Ω	99.5Ω	62.6Ω	Open or short	White-Black	162.0Ω	103.9Ω	74.0Ω	Protector	OFF : 120±5℃ ON : OFF-15℃	OFF:130±5℃ ON :80±20℃		
Motor terminal or Relay connector	Normal			Abnormal																			
	PKH-2FKA ₃	PKH-2.5, 3FKA _{2/3}	PKH-4FKSA _{2/3}																				
Red-Black	154.3Ω	99.5Ω	62.6Ω	Open or short																			
White-Black	162.0Ω	103.9Ω	74.0Ω																				
Protector	OFF : 120±5℃ ON : OFF-15℃	OFF:130±5℃ ON :80±20℃																					
Vane motor (MV)	Measure the resistance between the terminals using a tester. (Surrounding temperature 20℃~30℃) <table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Brown-Yellow</td><td rowspan="4">186~214Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Brown-Blue</td></tr><tr><td>Red-Orange</td></tr><tr><td>Red-Pink</td></tr></table>	Connector	Normal	Abnormal	Brown-Yellow	186~214Ω	Open or short	Brown-Blue	Red-Orange	Red-Pink													
Connector	Normal	Abnormal																					
Brown-Yellow	186~214Ω	Open or short																					
Brown-Blue																							
Red-Orange																							
Red-Pink																							

<Thermistor Characteristic graph>

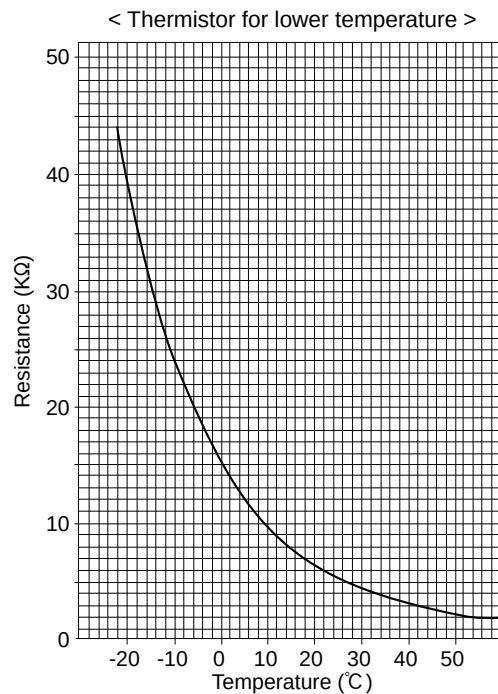
Thermistor for lower temperature

Room temperature thermistor(RT1)
Pipe temperature thermistor(RT2)

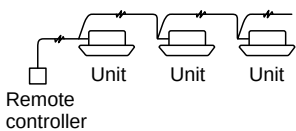
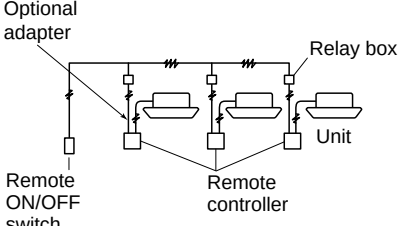
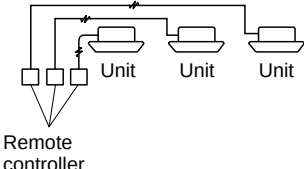
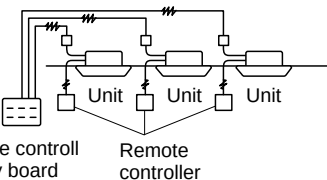
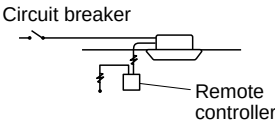
Thermistor $R_0=15k\Omega \pm 3\%$
Fixed number of $B=3480k\Omega \pm 2\%$

$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C	15kΩ
10°C	9.6kΩ
20°C	6.3kΩ
25°C	5.4kΩ
30°C	4.3kΩ
40°C	3.0kΩ



1. VARIETY OF SYSTEM CONTROL FUNCTIONS

① Group control with a single remote controller (See page 64.)	 Remote controller	Many units, installed at different locations, can be started and controlled with a single remote controller. The remote controller can be mounted in a different location using a non-polar two-wire cable, which can be extended up to 500m. A maximum of 50 units can be controlled with a single remote controller. All units operate in the same mode.
② Both remote ON/OFF and individual controls (See page 65.) ※ Timer adapter (PAC-SA89TA-E) is needed.	 Optional adapter Remote ON/OFF switch Relay box Remote controller Unit	All units can be turned on or off simultaneously using a remote ON-OFF switch. Also, each unit can be controlled individually by each remote controller. During remote ON-OFF control, a message of "CENTRALLY CONTROLLED" is displayed on the LCD of the remote controller. This is available for both one unit control and several units control.
③ Individual control by grouping remote controllers (See page 66.)	 Remote controller Unit	By grouping the remote controllers in one place, several units installed at different locations can be controlled individually, and operation conditions of all units are visible without a special control board. The control method is the same as that of the single unit with a single remote controller.
④ Multiple remote control display (See page 67.) ※ Multiple display adapter (PAC-SA88HA-E) is needed.	 Remote control display board Remote controller Unit	Several units can be controlled with a remote control display board. Operation conditions of all the units are visible with the remote control display board. Individual control by each remote controller is also possible.
⑤ Auto restart function (See page 67.)	 Circuit breaker Remote controller Unit	A unit can be started or stopped with the circuit breaker on or off. Remote controller is also available. With this function, when the power is restored after power failure, the unit will restart automatically. (However, when the remote controller POWER ON/OFF button is OFF, the unit will not start.)

2. GROUP CONTROL WITH A SINGLE REMOTE CONTROLLER

A maximum of 50 units can be started in order according to the dip switch settings

2-1 How to wire

- (1) Connect the remote controller to the double terminal block on the indoor controller board of the master unit (No.0 unit). (See Figure 1.)
- (2) Connect the double terminal block of the master unit to the double terminal block of No.1 unit.
- (3) Connect the double terminal block of No.1 unit to the double terminal block of No.2 unit.
- (4) Continue the process until all the units are connected with two-wire cables. (See Figure 2.)
- (5) Remove the connector CN40 from the indoor controller board of each unit except the master unit. (See Figure 3.)
- (6) Set the unit-address of each unit with SW2 on the indoor controller board following the instructions below.

Figure 1

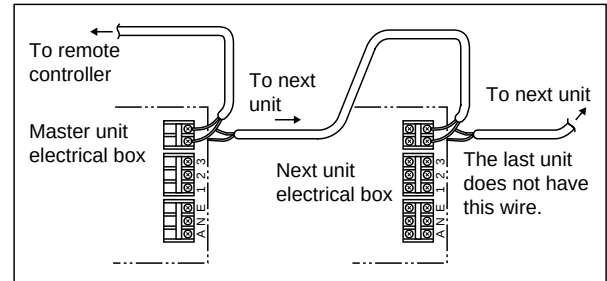
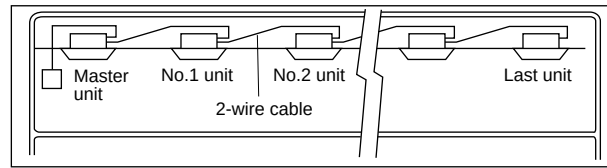


Figure 2



2-2 How to set unit-address

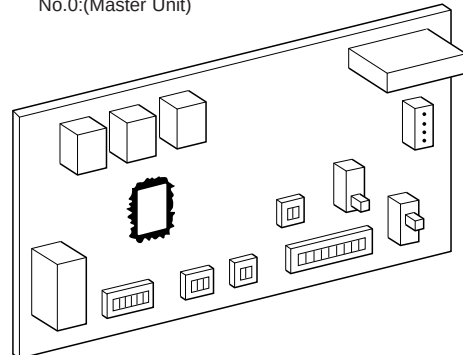
The unit-address also serves as a successive-start timer which starts each unit at intervals of 1 second. If two or more units have the same unit-address in a group control, operation stops due to system error. Be sure to set SW2 correctly following the instructions below.

- (1) Each lever of SW2 shows the number as follows.
 SW2-1 : 1 SW2-4 : 8
 SW2-2 : 2 SW2-5 : 16
 SW2-3 : 4 SW2-6 : 32
- (2) Total number of levers turned to ON shows the address of the unit.
 For example, to set No.3 unit, turn ON SW2-1 and SW2-2.
- (3) In this way, set from the master unit to the last unit.
 Do not forget to set the master (No. 0) unit.

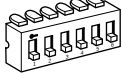
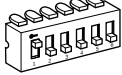
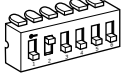
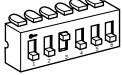
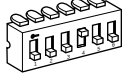
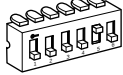
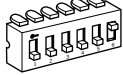
Figure 3

Indoor controller board ▼

Should be removed from all units other than unit No.0:(Master Unit)



Setting examples

	Master (No. 0) unit	No. 1 unit	No. 2 unit	No. 4 unit	No. 8 unit	No. 16 unit	No. 32 unit
SW2	ALL OFF 	1 ON 	2 ON 	3 ON 	4 ON 	5 ON 	6 ON 
Unit address & start delay in seconds.	0	1	2	4	8	16	32

2-3 Unit control

The remote controller can control all units ON/OFF, temperature, air flow, and swing louver. However, the thermostat in each unit turns ON or OFF individually to adjust to the room temperature.

3. REMOTE ON-OFF AND INDIVIDUAL REMOTE CONTROLS

This method is available to control one unit or any number of units.

The following operations are available by connecting a relay, a timer adapter (PAC-SA89TA-E), and a remote ON/OFF switch to the system. Timer adapter is an optional part. Other parts are available on the market.

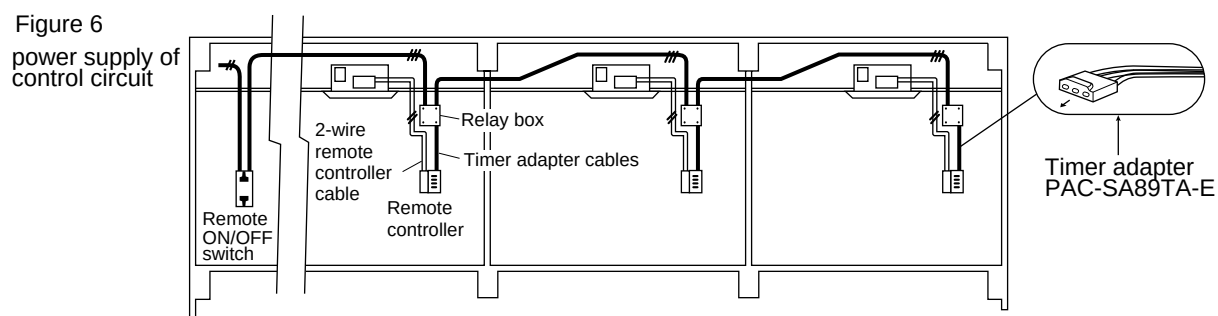
(A) To start all units in order by remote ON-OFF switch

(B) To stop all units simultaneously by remote ON-OFF switch

(C) To switch between the remote ON-OFF control and the individual remote control

3-1 System

Figure 6 shows the case of three units. The same is the case with any number of units.



NOTE1 : Install the relay box where you can be serviced it easily.

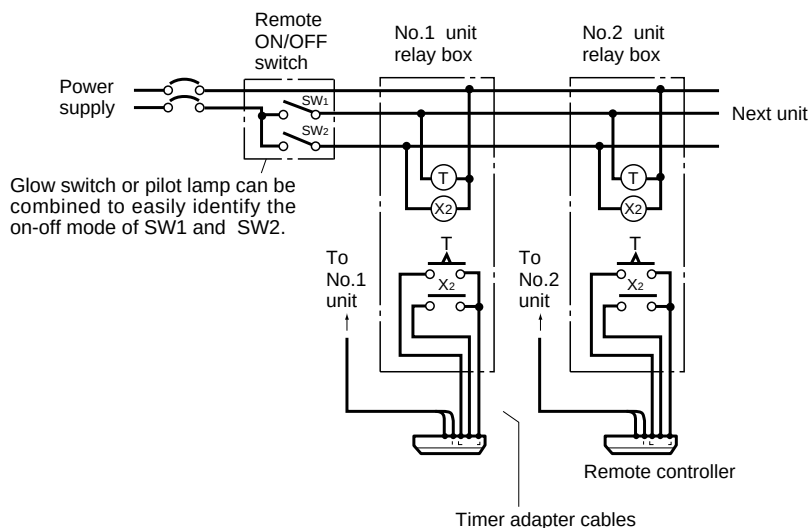
NOTE2 : For control circuit wiring, use a wire of No. 14 AWG or a control cable according to the power supply of control circuit.

NOTE3 : When the power supply of the control circuit is 220/240V AC,

- Do not connect the control circuit wire to the remote controller cable directly.
- Do not place the control circuit wire and the remote controller cable into the same conduit tube.

3-2 Basic wiring

Caution : Before starting all units simultaneously by the remote ON-OFF switch, be sure to connect a sequence-start timer into the remote ON-OFF circuit. Otherwise, a rush of starting current may damage the power supply.



3-3 Switch function of remote ON-OFF switch

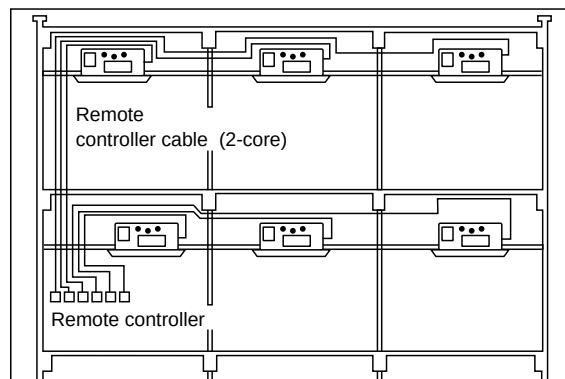
		SW2 (Switches between remote ON-OFF and individual control)	
		ON (Remote ON-OFF control)	OFF (Individual control)
SW1 (Switches between remote ON and OFF.)	ON (Start)	All units start together. *1 Individual control is not available.	Each unit can be controlled by each remote controller. Remote ON-OFF switch is not available.
	OFF (Stop)	All units start together. *2 Individual control is not available.	

*1 After all units start together, if SW2 is turned OFF, each unit can be individually stopped by each remote controller.

*2 After all units stop together, if SW2 is turned OFF, each unit can be individually started by each remote controller.

4. INDIVIDUAL CONTROL BY GROUPING THE REMOTE CONTROLLERS

- Grouping the remote controllers allows individual control and centralized monitoring of units installed in different places without a special control board.
- Remote control cables are extendible up to 500m. When the cable length exceeds 12m, use the double-insulated two-core cable such as Belden 9407. Also, the cable thickness must be No. 22 AWG or above.
- When gathering the power ON/OFF switches of air conditioners near the remote controllers, you should also install the power ON/OFF switch near each unit to prevent electric trouble during servicing.



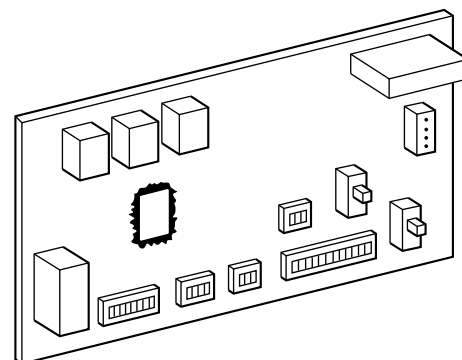
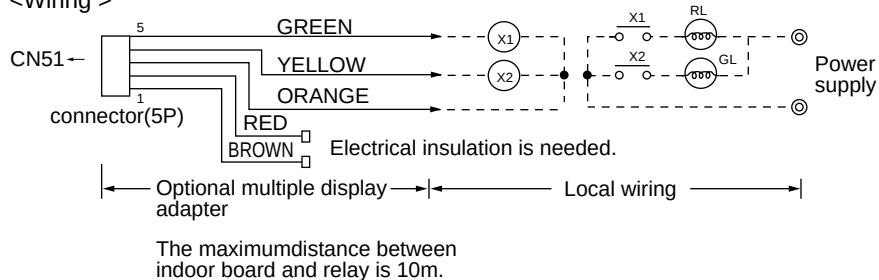
5. MULTIPLE REMOTE CONTROL DISPLAY

You can control several units with a multiple remote control display, by wiring an optional multiple display adapter (PAC-SA88HA-E) with relays and lamps on the market.

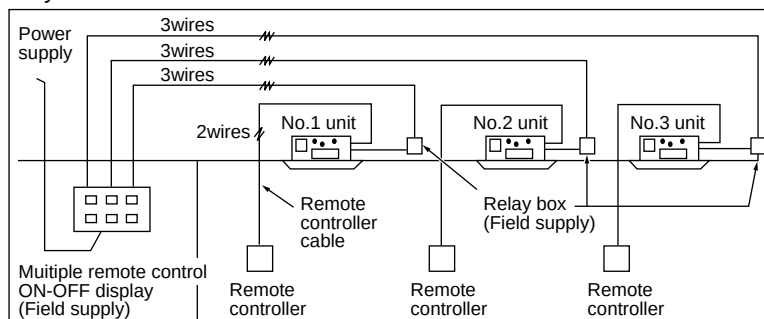
5-1 How to wire

- (1) Connect the multiple display adapter to the connector CN51 on the indoor controller board.
- (2) Wire three of the five wires from the multiple display adapter as shown in the figure below.

<Wiring>



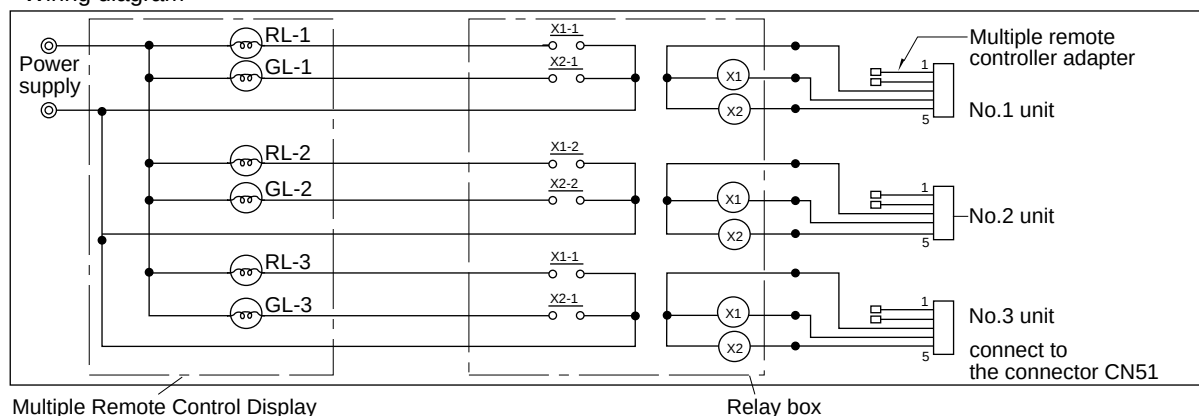
<System>



[Notes on Signs]

X1:Relay (for check lamp)
X2:Relay (for operation lamp)
RL:Check Lamp
GL:Operation Lamp
[Field supplied parts]
Relays:12V DC with rated coil power consumption below 0.9W.
Lamps:Matching to power supply voltage.

<Wiring diagram>

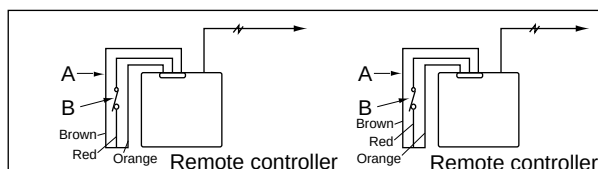


6. AUTO RESTART FUNCTION

By setting the dip switch SW1-10 to ON (PKH-2FKA), J1-10 cut (PKH-2.5/3/4FK(S)A) the air conditioner can be started/stopped by power supply ON/OFF.

If the air conditioner is OFF before the power failure, it will not start operation by power restore.

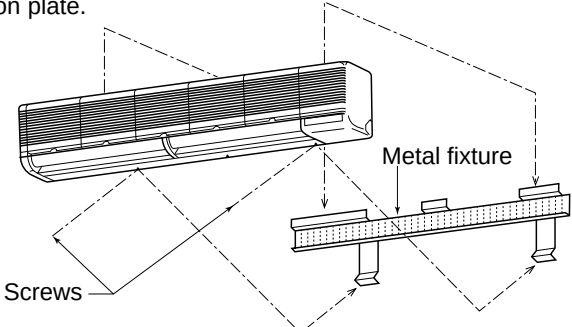
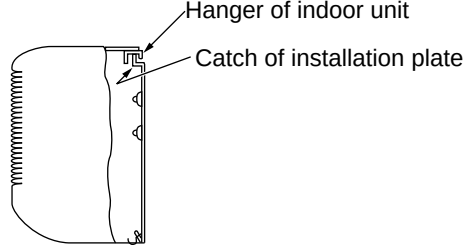
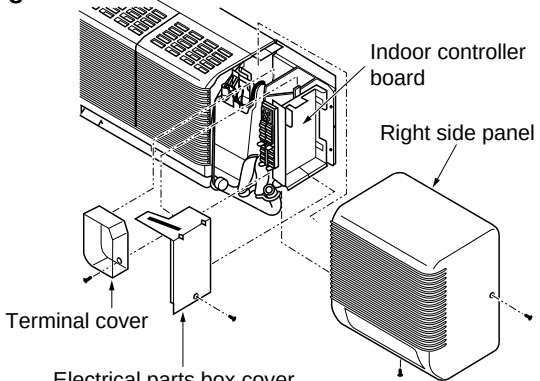
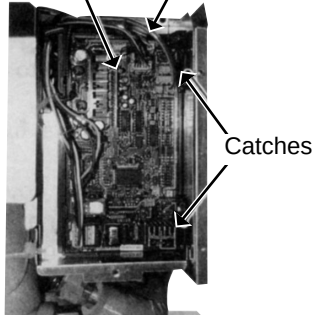
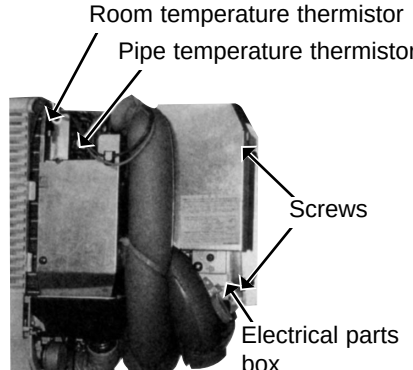
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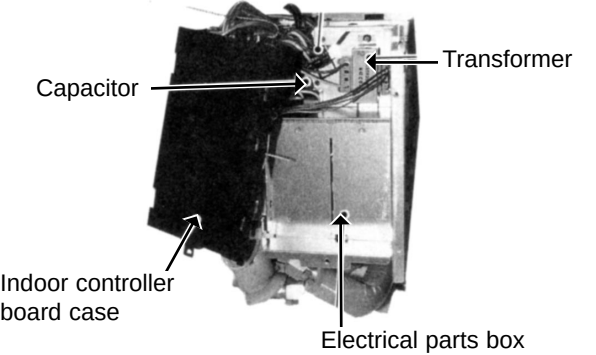
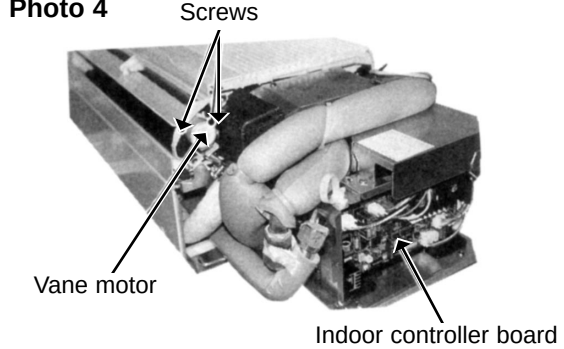
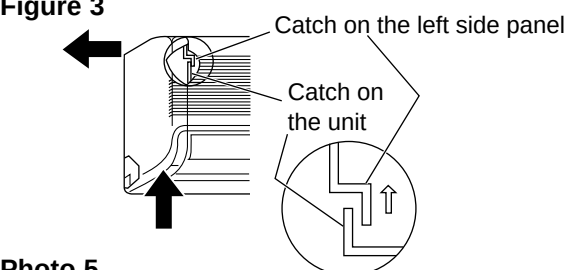
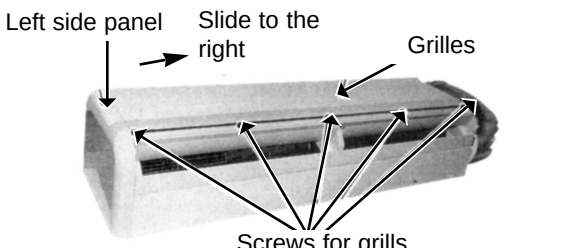
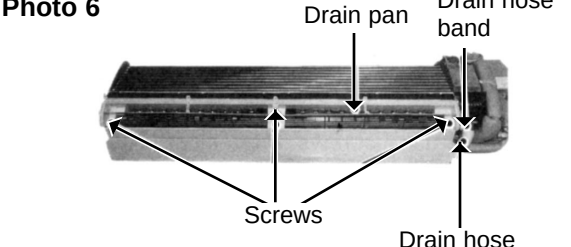
A : an optional timer adapter
B : a single-throw switch

For remote control, connect the optional timer adapter (PAC-SA89TA-E)

PKH-3FKA₂, PKH-3FKA₃

OPERATING PROCEDURE	PHOTOS&ILLUSTRATION
1. Removing the lower side of the indoor unit from the installation plate (1) Remove the 2 screws. Hang the indoor unit hangers to the catches on the installation plate. 	Figure 1  Hanger of indoor unit Catch of installation plate
2. Removing the right side panel (1) Remove the 2 screws of the right side panel: one on the bottom and the other on the upper right-hand side. (2) Sliding the right side panel to the right, pull it out toward you.	Figure 2  Indoor controller board Right side panel Terminal cover Electrical parts box cover
3. Removing the indoor controller board (1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover, and remove the cover. (3) Disconnect the connectors on the indoor controller board. (4) To unhook the catches on the right-hand side of the indoor controller board, pull the left-hand side toward you and lift up the cover to the right. Then the indoor controller board can be removed.	Photo 1  Indoor controller board Electrical parts box cover Catches
4. Removing the electrical parts box (1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover, and remove the cover. (3) Remove the room temperature thermistor and the pipe temperature thermistor. (4) Disconnect the vane motor connector on the indoor controller board. (5) Remove the 2 screws of the electrical parts box. (6) Disconnect the connector of the heater lead wire connector. (7) Disconnect the connector of the fan motor lead wire. (8) Remove the electrical parts box.	Photo 2  Room temperature thermistor Pipe temperature thermistor Screws Electrical parts box



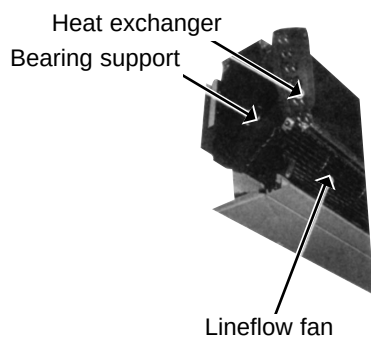
OPERATING PROCEDURE	PHOTOS&ILLUSTRATION
(9) Remove the screws of the indoor controller board case, and pull out the indoor controller board case. Then the transformer and the capacitor can be serviced.	Photo 3  Capacitor Transformer Indoor controller board case Electrical parts box
5. Removing the vane motor (1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover, and remove the cover. (3) Remove the 2 screws of the vane motor, and remove the motor from the shaft. (4) Disconnect the vane motor connector on the indoor controller board.	Photo 4  Screws Vane motor Indoor controller board
6 Removing the intake grilles (1) Remove the right side panel. (2) To remove the left side panel, remove the screw on the bottom and the screw on the upper left-hand side. (See Figure 3.) 1. Press up this side of the left side panel to unhook the catch on the panel from the catch on the unit. 2. Slide the left side panel to the left to remove the panel. Note: Fix the unit to the metal fixture securely (3) Remove the air filters. (4) Hold and press the center cover to remove. (5) Remove the screws of the grilles. (6) Pull the lower side of the grille toward you and slide the upper to the right to remove the grilles.	Figure 3  Catch on the left side panel Catch on the unit Photo 5  Left side panel Slide to the right Grilles Screws for grilles
7. Removing the drain pan (1) Remove the left and right side panels. (2) Remove the grills. (3) Remove the electrical parts box cover. (4) Loosen the drain hose band to remove. (5) Remove the 3 screws of the drain pan, and slide the drain pan toward you to remove.	Photo 6  Drain pan Drain hose band Screws Drain hose

OPERATING PROCEDURE

8. Removing the lineflow fan and the fan motor

- (1) Remove the left and right side panels.
- (2) Remove the grilles.
- (3) Remove the electrical parts box.
- (4) Remove the drain pan.
- (5) Loosen the screw that fixes the lineflow fan to the fan motor. (See Photo 7.)
- (6) Remove the 4 screws of the motor fixture, and remove the fan motor and the motor fixture at a time (See Photo 8.)
- (7) Remove the screws of the left and right motor supports, and remove the motor supports and the fan motor. (See Photo 9.)
- (8) Remove the screw of the center support, and remove the support. (See Photo 10.)
- (9) Remove the 2 screws on the left and right sides of the heat exchanger, and pull the bearing support toward you. (See Photo 11.)
- (10) Pull the left-hand side of the heat exchanger toward you, and remove the lineflow fan.

Photo 11



PHOTOS

Photo 7

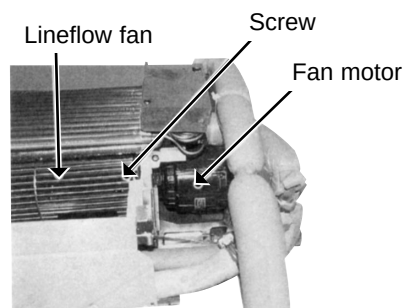


Photo 8

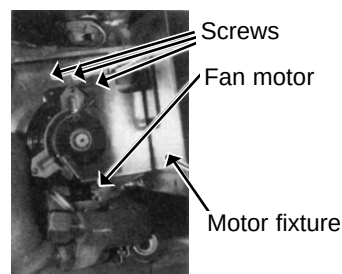


Photo 9

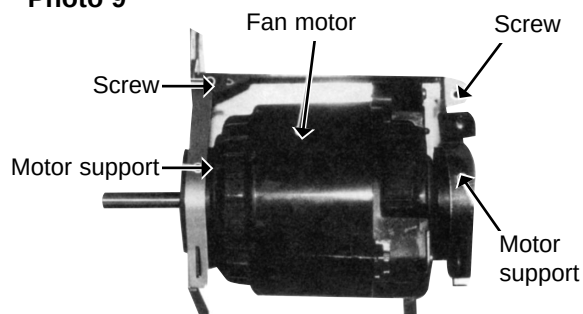
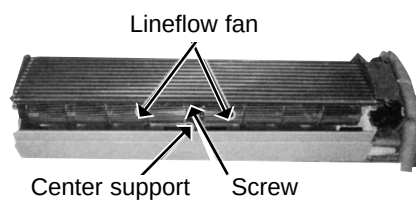
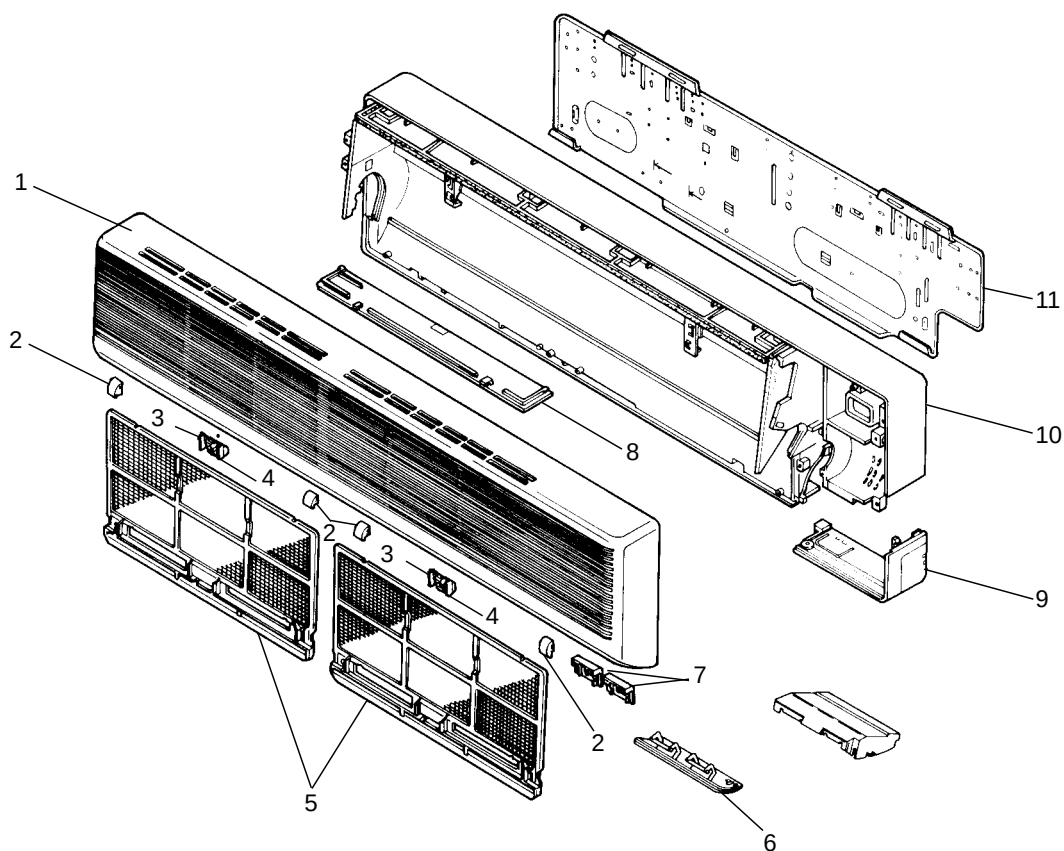


Photo 10



STRUCTURAL PARTS

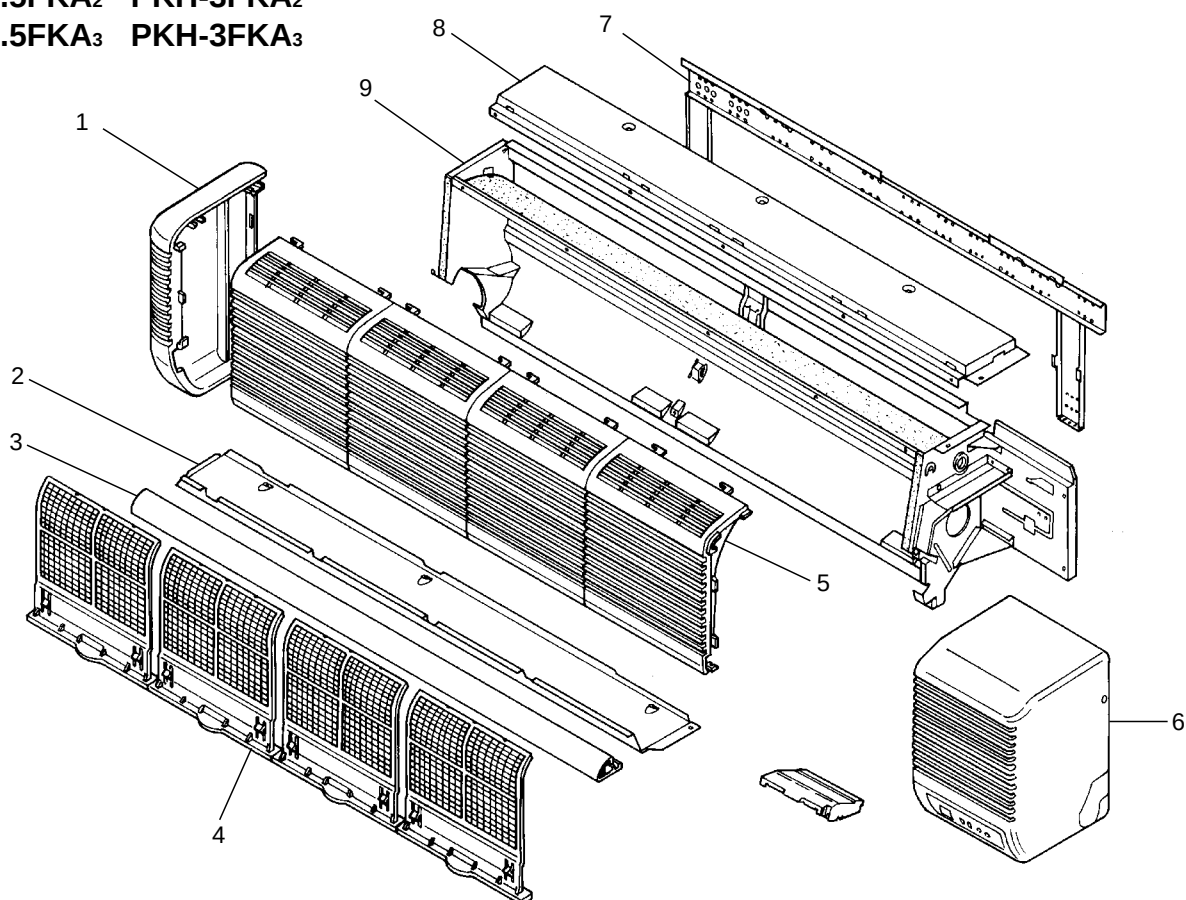
PKH-2FKA
 PKH-2FKA₁
 PKH-2FKA₂
 PKH-2FKA₃



No.	Part No.	Part Name	Specification	Q'ty / set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2					Unit	Amount
				FKA	FKA1 FKA2 FKA3					
1	R01 KV5 651	FRONT PANEL		1						
	R01 47J 651	FRONT PANEL			1					
2	R01 KV5 096	SCREW CAP		4	4					
3	—	CATCH HOLDER		2	2	(BC25R572H06)				
4	R01 A20 054	FILTER CATCH		2	2					
5	R01 KV5 500	AIR FILTER		2						
	R01 47J 500	AIR FILTER			2					
6	T7W 580 058	SERVICE PANEL		1	1					
7	—	PANEL CATCH		2	2	(BC25G057H07)				
8	R01 KV5 623	UNDER COVER		1	1					
9	R01 KV5 658	CORNER COVER		1	1					
10	R01 KV5 635	BOX ASSEMBLY		1	1					
11	R01 KV5 808	BACK PLATE		1	1					

STRUCTURAL PARTS

PKH-2.5FKA PKH-3FKA
 PKH-2.5FKA₁ PKH-3FKA₁
 PKH-2.5FKA₂ PKH-3FKA₂
 PKH-2.5FKA₃ PKH-3FKA₃



Part number that is circled is not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty / set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2.5			PKH-3						Unit	Amount
				FKA	FKA 1 FKA 2	FKA3	FKA	FKA1 FKA2	FKA3					
1	R01 12G 662	LEFT SIDE PANEL		1	1	1	1	1	1					
2	R01 12G 812	UNDER PLATE		1	1		1	1						
	R01 E01 812	UNDER PLATE				1			1					
3	R01 12G 811	NOSE		1	1		1	1						
	R01 E00 811	NOSE				1			1					
4	R01 A17 500	AIR FILTER		4	4	4	4	4	4					
5	R01 12G 691	INTAKE GRILLE		2	2	2	2	2	2					
6	R01 12G 661	RIGHT SIDE PANEL		1	1	1	1	1	1					
7	R01 12G 808	BACK PLATE		1	1	1	1	1	1					
8	R01 E01 641	TOP PLATE		1	1	1	1	1	1					
9	—	BOX ASSEMBLY		1	1		1	1		(BG00A593G71)				
	—	BOX ASSEMBLY				1			1	(RG00A734G29)				
⑩	R01 12G 523	DRAIN SOCKET		1	1	1	1	1	1					

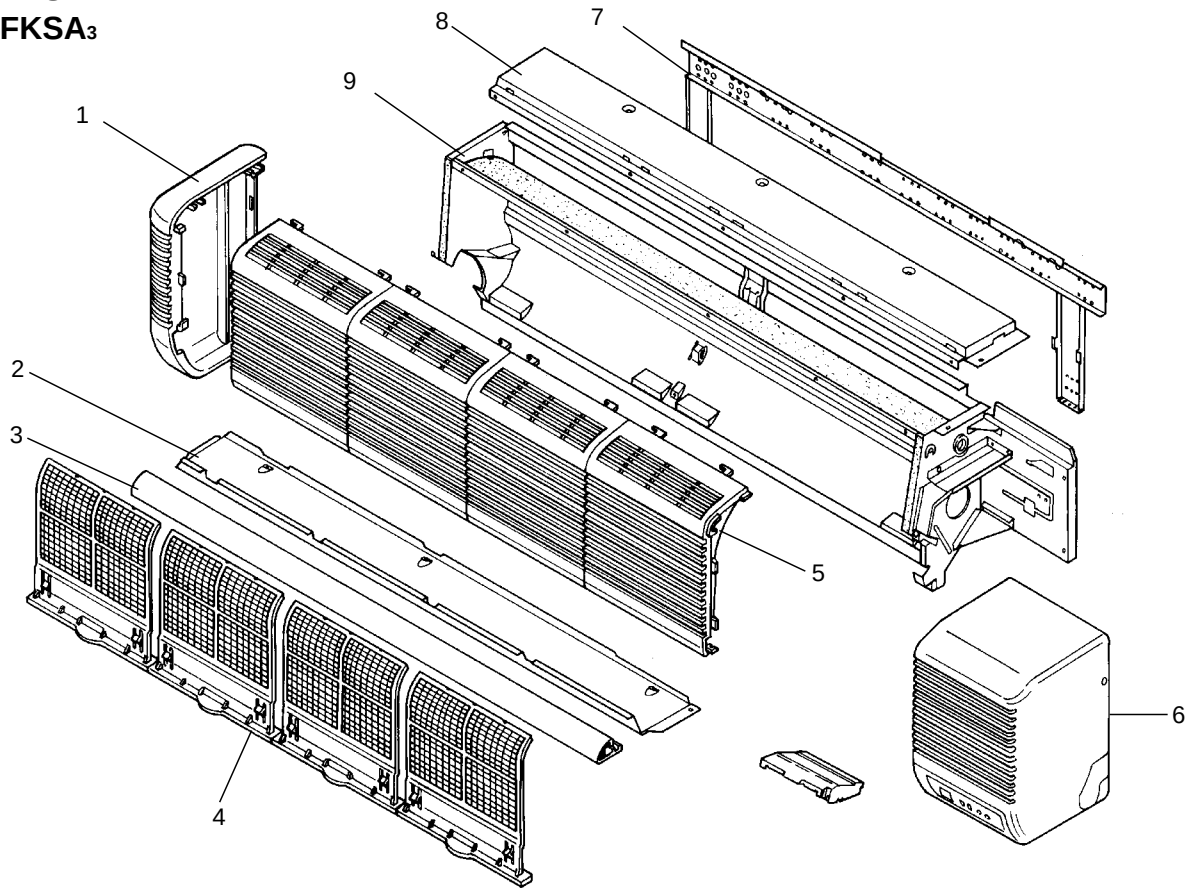
STRUCTURAL PARTS

PKH-4FKSA

PKH-4FKSA₁

PKH-4FKSA₂

PKH-4FKSA₃



Part number that is circled is not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				FKSA	FKSA ₁ FKSA ₂	FKSA ₃				Unit	Amount
1	R01 12G 662	LEFT SIDE PANEL		1	1	1					
2	R01 16G 812	UNDER PLATE		1	1						
	R01 E00 812	UNDER PLATE				1					
3	R01 16G 811	NOSE		1	1						
	R01 E01 811	NOSE				1					
4	R01 A17 500	AIR FILTER		5	5	5					
5	R01 12G 691	INTAKE GRILLE		2	2	2					
6	R01 12G 661	RIGHT SIDE PANEL		1	1	1					
7	R01 16G 808	BACK PLATE		1	1	1					
8	R01 E00 641	TOP PLATE		1	1	1					
9	—	BOX ASSEMBLY		1	1		(BG00A593G72)				
	—	BOX ASSEMBLY				1	(RG00A734G30)				
⑩	R01 16G 692	INTAKE GRILLE		1	1	1					
⑪	R01 12G 523	DRAIN SOCKET		1	1	1					

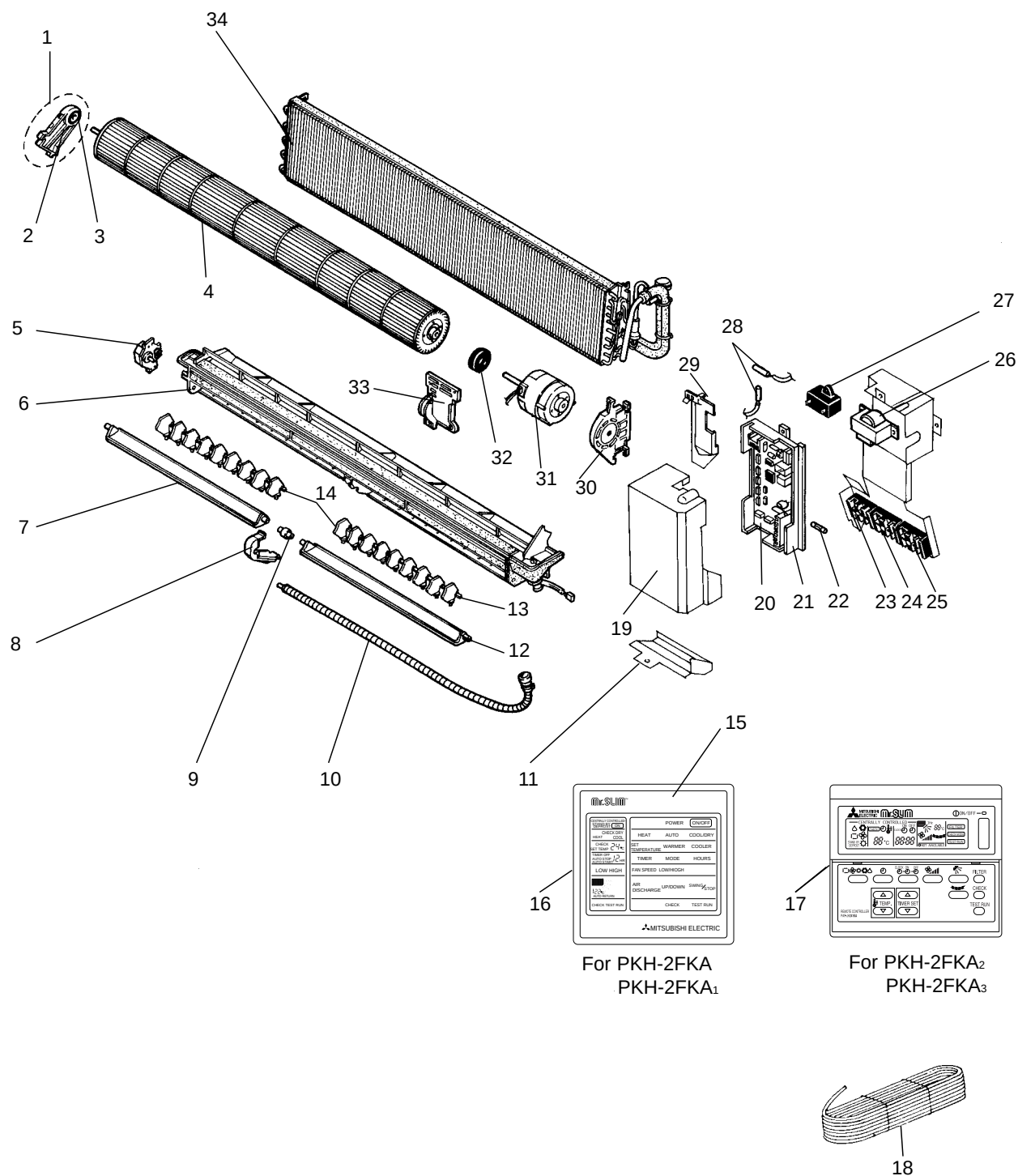
ELECTRICAL PARTS

PKH-2FKA

PKH-2FKA₁

PKH-2FKA₂

PKH-2FKA₃



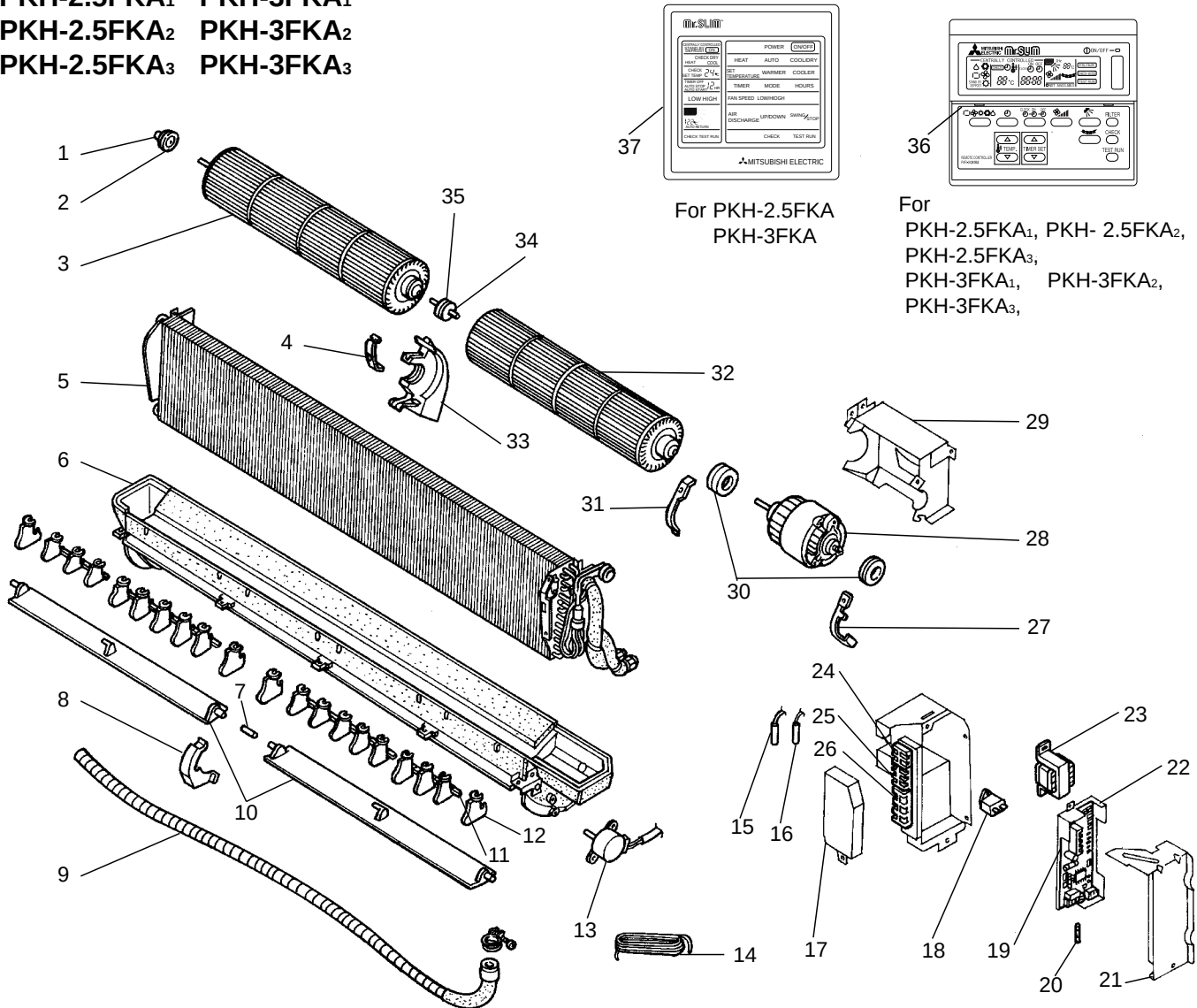


Part number that is circled is not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty / set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2					Unit	Amount
				FKA FKA1	FKA2 FKA3					
1	R01 KV5 106	BEARING SUPPORT		1	1					
2	R01 KV5 102	BEARING MOUNT		1	1					
3	R01 566 103	SLEEVE BEARING		1	1					
4	R01 KV5 114	LINEFLOW FAN		1	1					
5	R01 KV5 223	VANE MOTOR		1	1		MV			
6	R01 KV5 530	NOZZLE ASSEMBLY		1	1					
7	R01 KW1 002	LEFT ROTARY VANE		1	1					
8	—	CENTER SUPPORT		1	1	(BG25B750H02)				
9	—	VANE SLEEVE		1	1	(BG25M017H06)				
10	R01 KV5 527	DRAIN HOSE		1	1					
11	—	TERMINAL COVER		1	1	(BG02B718H05)				
12	R01 KW2 002	RIGHT ROTARY VANE		1	1					
13	—	ARM		2	2	(BG25D912H04)				
14	—	GUIDE VANE		16	16	(BG25F045H04)				
15	T7W 419 200	REMOTE CONTROLLER		1			R.B			
16	T7W 351 077	REMOTE CONTROLLER COVER		1						
17	T7W 54J 200	REMOTE CONTROLLER			1		R.B			
18	T7W 556 305	REMOTE CONTROLLER CABLE		1	1					
19	—	CONTROL BOX COVER		1	1	(BG02A326G06)				
20	T7W 70J 310	INDOOR CONTROLLER BOARD		1	1		I.B			
21	—	CONTROLLER CASE		1	1	(BG25B573H03)				
22	T7W 520 239	FUSE	250V 6.3A	2	2		F1<I.B>			
23	T7W 514 716	TERMINAL BLOCK	3P(L/N/ ⊕)	1	1		TB2			
24	T7W 512 716	TERMINAL BLOCK	2P(1/2)	1	1		TB5			
25	T7W 517 716	TERMINAL BLOCK	3P(1/2/3)	1	1		TB4			
26	T7W 580 799	TRANSFORMER		1			T			
	T7W 53J 799	TRANSFORMER			1		T			
27	R01 588 255	FAN MOTOR CAPACITOR	2μF 440V	1	1		C			
28	R01 J07 202	THERMISTOR	PIPE TEMPERATURE ROOM TEMPERATURE	2	2		RT1 RT2			
29	—	WATER SHIELD		1	1	(BG25B846H11)				
30	R01 KV5 130	MOTOR SUPPORT		1	1					
31	T7W 570 762	FAN MOTOR	PK4V30-KA	1	1		MF			
32	R01 KV5 105	RUBBER MOUNT		2	2					
33	R01 KV5 135	MOTOR COVER		1	1					
34	R01 KV5 480	HEAT EXCHANGER		1						
	T7W 54J 480	HEAT EXCHANGER			1					
35	R01 12G 523	DRAIN SOCKET		1	1					

ELECTRICAL PARTS

PKH-2.5FKA PKH-3FKA
 PKH-2.5FKA₁ PKH-3FKA₁
 PKH-2.5FKA₂ PKH-3FKA₂
 PKH-2.5FKA₃ PKH-3FKA₃



No.	Part No.	Part Name	Specification	Q'ty / set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2.5			PKH-3						Unit	Amount
				FKA	FKA ₁ FKA ₂	FKA ₃	FKA	FKA ₁ FKA ₂	FKA ₃					
1	R01 Z61 102	BEARING MOUNT		1	1	1	1	1	1					
2	R01 005 103	SLEEVE BEARING		1	1	1	1	1	1					
3	R01 13G 114	LEFT LINEFLOW FAN		1	1	1	1	1	1					
4	—	BEARING BAND		1	1	1	1	1	1	(BG02L462H02)				
5	T7W 585 480	HEAT EXCHANGER		1	1	1								
	T7W 587 480	HEAT EXCHANGER					1	1	1					
6	R01 12G 529	DRAIN PAN		1	1		1	1						
	R01 E13 529	DRAIN PAN				1			1					
7	R01 12G 063	JOINT SHAFT		1	1	1	1	1	1					
8	R01 12G 621	CENTER COVER		1	1	1	1	1	1					



No.	Part No.	Part Name	Specification	Q'ty / set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-2.5			PKH-3						Unit	Amount
				FKA	FKA ₁ FKA ₂	FKA ₃	FKA	FKA ₁ FKA ₂	FKA ₃					
9	R01 KV5 527	DRAIN HOSE		1	1	1	1	1	1					
10	R01 12G 002	AUTO VANE		2	2	2	2	2	2					
11	—	ARM		3	3	3	3	3	3	(BG25H301H02)				
12	—	GUIDE VANE		16	16	16	16	16	16	(BG25J821H01)				
	—	GUIDE VANE(WITH HANDLE)		4	4	4	4	4	4	(BG25J821H02)				
13	R01 12G 223	VANE MOTOR		1	1	1	1	1	1		MV			
14	T7W 556 305	REMOTE CONTROLLER CABLE		1	1	1	1	1	1					
15	R01 06A 202	ROOM TEMPERATURE THERMISTOR		1	1	1	1	1	1		RT1			
16	R01 22A 202	PIPE TEMPERATURE THERMISTOR		1	1	1	1	1	1		RT2			
17	—	TERMINAL COVER		1	1	1	1	1	1	(BG02J608H07)				
18	R01 588 255	FAN MOTOR CAPACITOR	2.0μF 440V	1	1	1	1	1	1		C			
19	T7W 503 310	INDOOR CONTROLLER BOARD	250V 6.3A	1			1				I.B			
	T7W 71J 310	INDOOR CONTROLLER BOARD			1	1		1	1		I.B			
20	T7W 520 239	FUSE		2	2	2	2	2	2		F1,2<I.B>			
21	—	CONTROLLER COVER		1	1	1	1	1	1	(BG02A648G02)				
22	—	CONTROLLER CASE		1	1	1	1	1	1	(BG25B573H06)				
23	T7W 50J 799	TRANSFORMER		1	1	1	1	1	1		T			
24	T7W 512 716	TERMINAL BLOCK	2P(1/2)	1	1	1	1	1	1		TB5			
25	T7W 517 716	TERMINAL BLOCK	3P(1/2/3)	1	1	1	1	1	1		TB4			
26	T7W 509 716	TERMINAL BLOCK	3P(L/N/Ⓢ)	1	1	1	1	1	1		TB2			
27	—	MOTOR BAND		1	1	1	1	1	1	(BG02H065H01)				
28	R01 12G 220	FAN MOTOR	D094P40MS	1	1	1	1	1	1		MF			
29	—	MOTOR LEG		1	1	1	1	1	1	(BG02A534H16)				
30	R01 12G 105	RUBBER MOUNT		2	2	2	2	2	2					
31	—	MOTOR BAND		1	1	1	1	1	1	(BG02H178H01)				
32	R01 13G 115	RIGHT LINEFLOW FAN		1	1	1	1	1	1					
33	—	CENTER SUPPORT		1	1	1	1	1	1	(BG00R259G07)				
34	R01 12G 103	SLEEVE BEARING		1	1	1	1	1	1					
35	R01 KV5 102	BEARING MOUNT		1	1	1	1	1	1					
36	T7W 53J 200	REMOTE CONTROLLER			1	1		1	1		R.B			
37	T7W 418 200	REMOTE CONTROLLER		1			1				R.B			

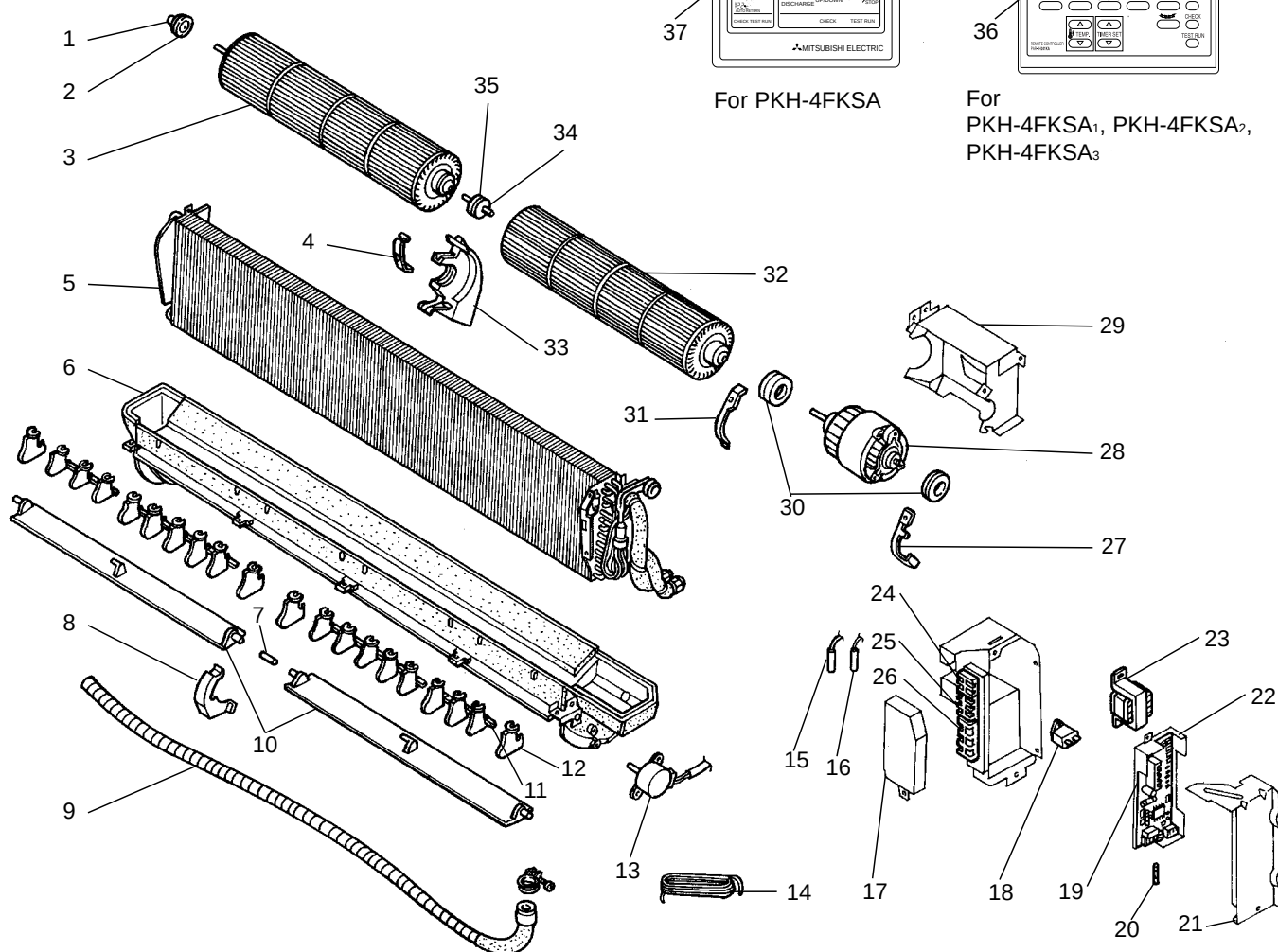
ELECTRICAL PARTS

PKH-4FKSA

PKH-4FKSA₁

PKH-4FKSA₂

PKH-4FKSA₃



No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-4						Unit	Amount
				FKSA	FKSA ₁ FKSA ₂	FKSA ₃					
1	R01 Z61 102	BEARING MOUNT		1	1	1					
2	R01 005 103	SLEEVE BEARING		1	1	1					
3	R01 17G 114	LEFT LINEFLOW FAN		1	1	1					
4	—	BEARING BAND		1	1	1	(BG02L462H02)				
5	T7W 589 480	HEAT EXCHANGER		1	1	1					
6	R01 16G 529	DRAIN PAN		1	1						
	R01 E14 529	DRAIN PAN				1					
7	R01 12G 063	JOINT SHAFT		1	1	1					
8	R01 12G 621	CENTER COVER		1	1	1					
9	R01 KV5 527	DRAIN HOSE		1	1	1					



No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PKH-4						Unit	Amount
				FKSA	FKSA ₁ FKSA ₂	FKSA ₃					
10	R01 16G 002	AUTO VANE		2	2	2					
11	—	ARM		4	4	4	(BG25H301H02)				
12	—	GUIDE VANE		22	22	22	(BG25J821H01)				
	—	GUIDE VANE(WITH HANDLE)		4	4	4	(BG25J821H02)				
13	R01 12G 223	VANE MOTOR		1	1	1		MV			
14	T7W 556 305	REMOTE CONTROLLER CABLE		1	1	1					
15	R01 06A 202	ROOM TEMPERATURE THERMISTOR		1	1	1		RT1			
16	R01 22A 202	PIPE TEMPERATURE THERMISTOR		1	1	1		RT2			
17	—	TERMINAL COVER		1	1	1	(BG02J608H07)				
18	R01 576 255	FAN MOTOR CAPACITOR	3.0μF 440V	1	1	1		C			
19	T7W 503 310	INDOOR CONTROLLER BOARD		1				I.B			
	T7W 71J 310	INDOOR CONTROLLER BOARD			1	1		I.B			
20	T7W 520 239	FUSE	250V 6.3A	2	2	2		F1,2<I.B>			
21	—	CONTROLLER COVER		1	1	1	(BG02A648G02)				
22	—	CONTROLLER CASE		1	1	1	(BG25B573H06)				
23	T7W 50J 799	TRANSFORMER		1	1	1		T			
24	T7W 512 716	TERMINAL BLOCK	2P(1/2)	1	1	1		TB5			
25	T7W 517 716	TERMINAL BLOCK	3P(1/2/3)	1	1	1		TB4			
26	T7W 509 716	TERMINAL BLOCK	3P(L/N/⓪)	1	1	1		TB2			
27	—	MOTOR BAND		1	1	1	(BG02H065H01)				
28	R01 571 762	FAN MOTOR	D10A4P70MS	1	1	1		MF			
29	—	MOTOR LEG		1	1	1	(BG02A534H17)				
30	R01 16G 105	RUBBER MOUNT		1	1	1					
31	—	MOTOR BAND		1	1	1	(BG02H178H01)				
32	R01 17G 115	RIGHT LINEFLOW FAN		1	1	1					
33	—	CENTER SUPPORT		1	1	1	(BG00R259G07)				
34	R01 12G 103	SLEEVE BEARING		1	1	1					
35	R01 KV5 102	BEARING MOUNT		1	1	1					
36	T7W 53J 200	REMOTE CONTROLLER			1	1		R.B			
37	T7W 418 200	REMOTE CONTROLLER		1				R.B			

1. REFRIGERANT PIPES

Service Ref. : PKH-2FKA3, PKH-2.5FKA2, PKH-2.5FKA3, PKH-3FKA2, PKH-3FKA3

Part No.	PAC-05FFS-E	PAC-07FFS-E	PAC-10FFS-E	PAC-15FFS-E
Pipe length	5m	7m	10m	15m
Pipe size O.D.	Liquid:φ9.52 Gas:φ15.88			
Connection method	Indoor unit:Flared Outdoor unit:Flared			

Service Ref. : PKH-4FKSA2, PKH-4FKSA3

Part No.	PAC-SC51PI-E	PAC-SC52PI-E	PAC-SC53PI-E	PAC-SC54PI-E
Pipe length	5m	7m	10m	15m
Pipe size O.D.	Liquid:φ9.52 Gas:φ19.05			
Connection method	Indoor unit:Flared Outdoor unit:Flared			

Note 1. How to connect refrigerant pipes.

Factory supplied optional refrigerant pipings contain refrigerant at the above atmospheric pressures. As long as the connection takes no more than 5 minutes, no air will enter, and there will be no need for air purging. Remove the blind caps and make the connections within 5 minutes. After the connections for the indoor and outdoor units are made, open the stop valve on the outdoor unit to allow refrigerant gas to flow.

If piping length exceeds 5m, an additional charge of refrigerant is needed.

Note 2. The following main parts are contained in the optional refrigerant piping kit.

Heat insulating cover, vinyl tapes, nipples, sleeve and flange (for wall hole).

2. TIMER

Part No	PAC-SC32PTA
Model Name	Program timer

2-1. Program timer specifications

Parts name	Program timer
Parts No.	PAC-SC32PTA
Exterior dimensions (inch)	5-4/32×4-23/32×23/32 (130×120×18mm)
Installation	Wall mount
Type of clock	Quartz
Clock accuracy	±50 second / month at 25°C
Display-Time	Liquid crystal display
-Week	Liquid crystal display
-Timer setting unit	Liquid crystal display
Program cycle	24 hours
Timer setting unit	30 minutes
No. of set points	48 / day
Power rating	5V DC ±5% (Supplied by Remote Controller)

2-2. Feature of program timer

(1) Daily timer function

Daily timer can be set in 30 minutes units for up to 24 hours.

Each unit can be set for unit ON, unit OFF, or setback operation.

(2) Setback operation (PAC-SC32PTA)

Set back operation is useful for reducing running costs

e.g. At a hotel with a 24-hour system

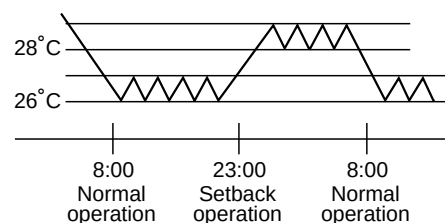
8:00~23:00 Cooling operation with set temperature at 26°C

23:00~8:00 Setback operation with 2 degrees of setback

As shown in the chart on the right, the set temperature rises 2 degrees automatically during the setback operation. When the setback operation ends, normal operation will begin.

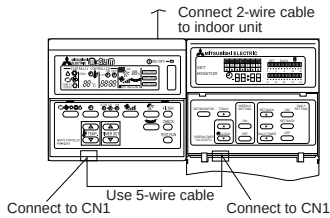
(3) Weekly timer function

Daily timer function can apply to each day of the week.



2-3. How to connect program timer

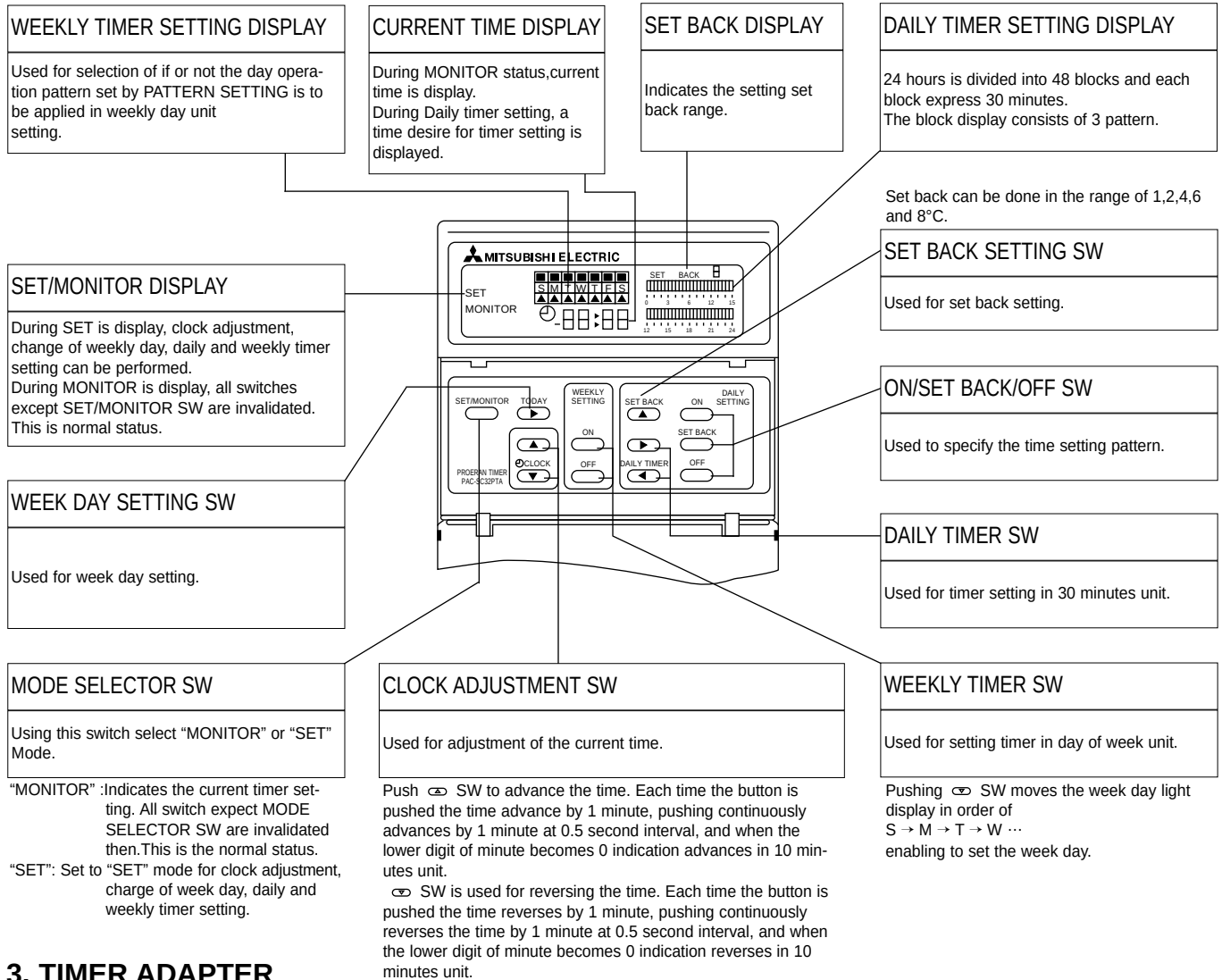
- (1) Install the program timer next to the remote controller the same way as the remote controller is installed.
- (2) Connect the program timer and the remote controller with a 5-wire cable as shown in the figure below



NOTE: While the program timer is connected to the remote controller, the 24hour ON/OFF timer on the remote controller will not operate.

2-4. Names and functions

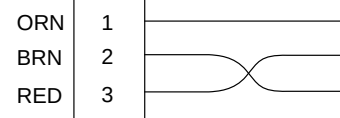
<PAC-SC32PTA>



3. TIMER ADAPTER

This adapter is needed for system control and for operation via external contacts. Adapter connection is described on page 65.

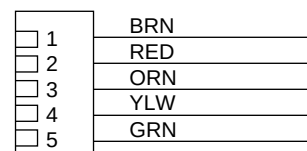
Part No.	PAC-SA89TA-E
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4. MULTIPLE REMOTE CONTROLLER ADAPTER

This adapter is needed for remote indication (operation/check). Adapter connection is described on page 67.

Part No.	PAC-SA88HA-E
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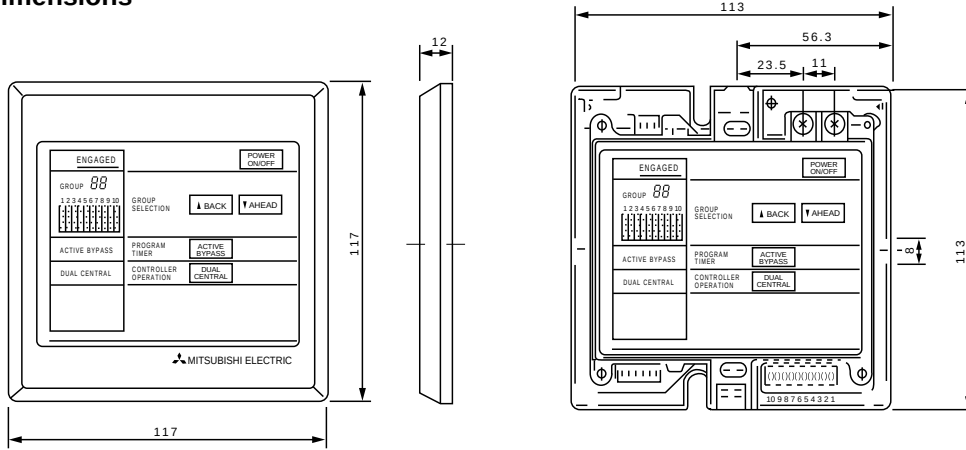


5. CENTRALIZED REMOTE CONTROLLER

Allows individual or combined control of up to 16 units. When using the PAC-805RC, the program timer adapter (PAC-825AD) is also needed.

Part No.	PAC-805RC
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5-1. Dimensions



5-2. Functions

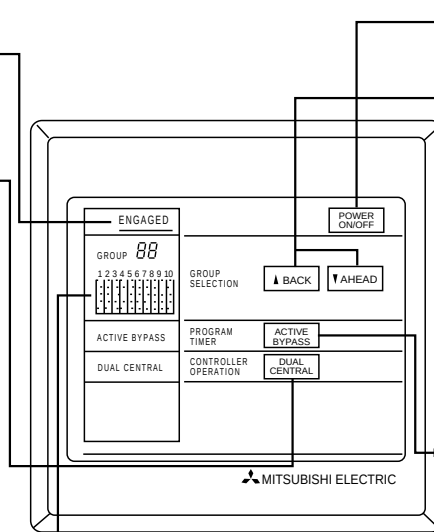
"ENGAGED" indicator
When this indicator is lit, transmission is in progress and all switches are inoperative.

DUAL/CENTRAL switch
This change-over switch governing the operation of the accessory remote controller.

"DUAL"
Instructions from both the accessory remote controller and the centralized remote controller are valid. (Priority given to the last instruction received.)

"CENTRAL"
ON/OFF switching by the accessory remote controller is invalidated. Operation is controlled by the centralized remote controller only.
Initial setting is "DUAL".

LCD Matrix Display
This display indicates the operational status of all connected units either by steady lighting or by flashing.



POWER ON/OFF switch
Operation ON/OFF switch.

▲BACK ▼AHEAD buttons
These buttons are used to designate the attached unit(s). (They designate the unit to be centrally controlled.)

●When group "00" is designated; collective ON/OFF instruction is sent to all units.

●When group "01"-"16" is designated; ON/OFF instruction is sent to the designated units only.

ACTIVE/BYPASS switch
This is a change-over switch for the program timer.
(It selects timer operation on the program timer.)
Use "BYPASS" when a program timer is not connected.
"ACTIVE"
The switch turns ON/OFF operational instructions from the program timer automatically.
"BYPASS"
ON/OFF Operation is by the centralized remote controller only.
Initial setting is "BYPASS".

Independent "DUAL / CENTRAL" and "ACTIVE / BYPASS" setting of all the groups is possible. When the power supply to the centralized remote controller is cut due to power failure, all settings will return to original "DUAL" and "BYPASS".

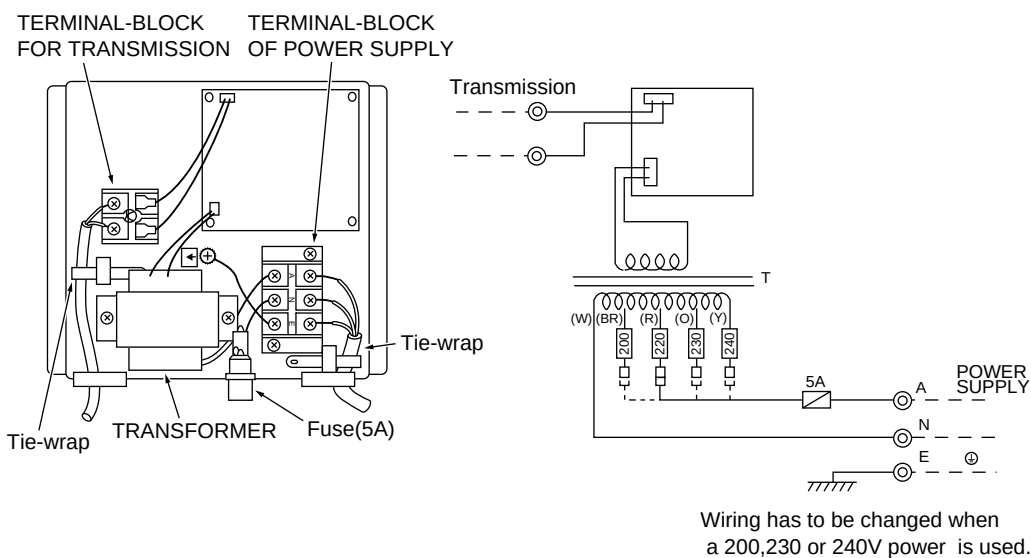
5-3. Connection method

(1) Connections in the power supply cord.

1. Connect the power supply cord to the power supply terminal-block and fix it in-place with a tie-wrap.
Connect a single phase 200V AC (220, 230, 240V) to Ⓐ ㉑.
As ㉑ is the GND terminal, be sure to ground the earth wire.

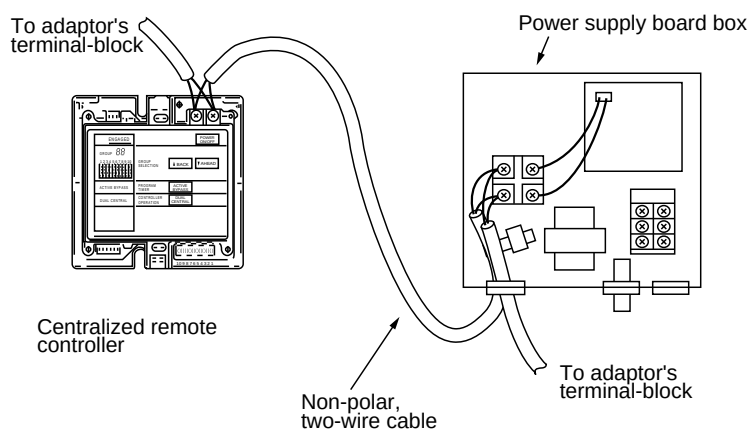
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap. Use a Ø1.6 (AWG 14) or above two-wire cable for the transmission line.

CAUTION : Never connect the power supply cord to the transmission terminal-block.

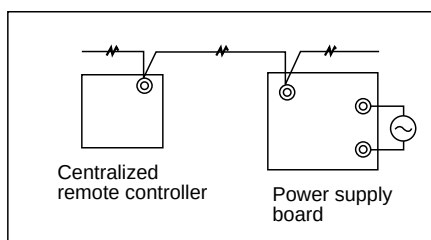


(2) Connection method of centralized remote controller and power supply board.

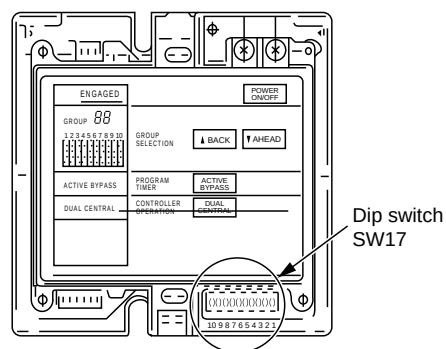
1. Connect the centralized remote controller and power supply board with a non-polar, two-wire cable.



2. Wiring diagram



3. Be sure to set the maximum address number with the dip switch SW17 on the centralized remote controller.

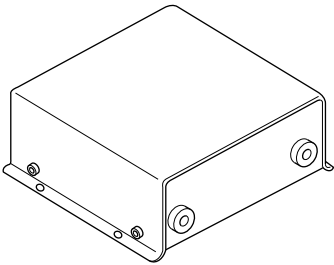
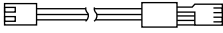
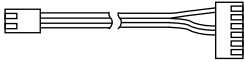
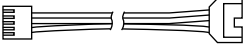


6. PROGRAM TIMER ADAPTER

This adapter is needed when a program timer(PAC-SC32PTA)or a centralized remote controller(PAC-805RC)is used.

Part No.	PAC-825AD
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6-1. Parts included

① ADAPTER 1P.	② 3-core cable 1P.	③ 3-core cable 1P.
	 Length : 2m (6' 7")	 Length : 2m (6' 7")
	④ 4-core cable 1P.	⑤ 5-core cable 1P.
	 Length : 2m (6' 7")	 Length : 2m (6' 7")

6-2. Connection method

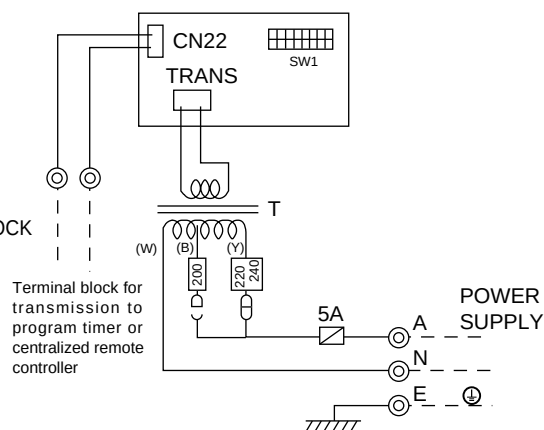
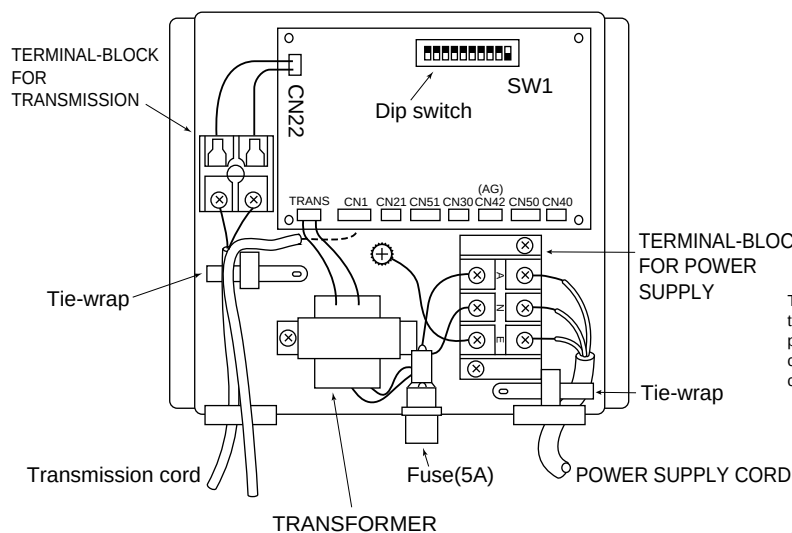
Connection and wiring methods differ with the type of the indoor unit used. Confirm the type before carrying out the work.

(1) Connections in the adapter box

1. Connect the power supply cord to the terminal-block and fix it in-place with a tie-wrap.
Connect a single phase 200V (220, 230, 240V) AV to ㉔ ㉕.
As ㉖ is the GND terminal, be sure to ground the earth wire.
2. Connect the transmission line to the transmission terminal-block and fix it in-place with a tie-wrap (when a centralized remote controller is being used).
CAUTION : Never connect the power supply cord to the transmission terminal-block

Fig-1

Fig-2



Wiring has to be changed when 200V power supply is used.

- (2) When the centralized remote controller is used, set the address number with the dip switch SW1 of the program timer adapter.

7. DRAIN PUMP (for PKH-2.5FKA, PKH-3FKA, PKH-4FKSA)

Part No.	PAC-SE89DM-E
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Mr.SLIM™

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